

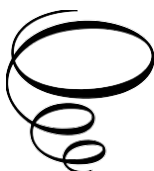
Halsted R. Holman and the Struggle for the Soul of Medicine

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By

Matthew H. Liang and Edward R. Lew

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For our teachers, our families, and their lived experiences

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PREFACE

In a person's life, not all years are equal. Important world events passed Matthew Liang by as he was preoccupied by becoming a doctor, until he met Halsted Holman. Looking back at his time at Stanford in training, it loomed large and very much of what he was and what he became. Holman showed a world of ideas larger than ourselves, what a physician could be, and what healthcare should do.

At Holman's 90th birthday celebration and symposium at Stanford University, there was an outpouring of affection for him, a long list of people who wanted to speak. For many there that day, he had touched a part of their soul. Several attendees quipped it was like "returning to Camelot." During a break, they clamored to hear more from him.

In 2015, Holman gave us permission to write his story. Michael Holman had recorded his father for hours, between August 2007 and February 2008. Dr. Diana Dutton, his wife, summarized these and other material in an unpublished 30-page account which she generously shared and we included in our work.

For Edward Lew, like Liang, English is also a second language. At the age of three, Edward was found abandoned on the streets of Santa Cruz, Bolivia and placed in an orphanage—where he was given the name, Pachin. Six months later, he was adopted by an American couple, Liz Wright and Bob Lew. On arrival in Boston, Pachin was diagnosed with active tuberculosis. After year-long antibiotics, he was cured. It was speculated that his original parents might have died from the same infection. Pachin grew up in a Boston suburb, Lexington, where dinners included conversations in economics, moral philosophy, Italian renaissance art, ancient history and military history.

There is 52 years between him and Liang. However, within 15 minutes of being introduced to Pachin, Liang stopped asking questions and began "selling" him on solving problems in health care. After a year or so of discussing conferences, lectures, books and papers that piqued shared interests and deepened our understanding, Pachin agreed to be an author.

Liang is a plaidoyer and participant-observer of the same world and period as Holman. Neither authors are historians and we take responsibility for our focus, our omissions, and how we make sense of what happened and may in the future.

This story is Holman's efforts through the rise of twentieth century American biomedical medicine, medical education, healthcare delivery through turbulent times and slow-motion crises that still present. This account is through the life of a humane and arguably heroic figure, an academic physician who straddled its highest pinnacle and became one of its strongest and most eloquent critics, who led by example and action, not just through safe academic study or critiques from the side lines.

He changed the debate, the vocabulary, clarified the real goals of academic medical centers in an era when the funding, the people, the technology and the need made all things seem possible. For his students, the values he represented and practiced were gifts to us.

Holman did this as a member of an elite medical family, an insider, as a member of the establishment, an academic and not as cranky naysayer, disheveled, nor as an aggrieved marginalized outsider. He had tremendous personal warmth and particularly with people he had nothing to gain from; and seemed always above the fray. He hated pretense, the cult of the celebrity, the arrogance of the "excellence deception," and was a sponge for viewpoints and knowledge from the range of human thinking.

He was modest, eloquent, with a looming presence, athletic grace, a baritone orator's cadence in a button-down shirt. With sleeves rolled up for work or discussion, he carried a sheaf of annotated Xerox copies of what could be obscure scholarly journals and monographs that he might have come upon in the New York Review of Books. He discussed them with colleagues and us in questioning, explaining, improving social equity, and the humanitarian ideals of medicine.

Words mattered a great deal to him and getting it right was a way we learned about thinking deeply and communicating ideas. He recognized that technical jargon could be divisive and elitist to outsiders and get in the way of understanding. He would probe for the simplest way to explain a concept so that every participant would feel comfortable. There was no such thing as a final draft. He had a talent for translating what one was trying to say or do in a way that contextualized its importance, made it better, bigger, grander, and helped them find their voice. Writing left-handed, sparingly on a blackboard he made difficult things simple and simple things nuanced. His arguments were clear and connected emotionally; the audience was often spell-bound.

His integrity was simple, unshakeable, and "could not be bought, sold, or rented" as Eugene Braunwald once quipped on another topic (Matthew H. Liang, personal communication, 2021). This is Holman's journey and struggle for the soul of medicine, the quest to bring the fruits of scientific medicine, its morality, and humanity for all.

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Teachers showed us the way: Alice Kao Liang, Ping Yee Liang, Art Liang, Ursula Liang, Stefanie Liang, Peter Liang, Paul Talalay, Rachel Parrish, Henry Heyl, Paul Loiselle, Donald Wilson, Kurt Moellering, Howard Burchell, Wes Goldsberry, Jincal Wei, Joanna and Gabe, Dan Federman, Matthew Toms, Charles Barlow, Matt Turnbull, Tony Lorenzo, Jeffrey Bush, Jim Dineen, Padraic Foran, Dick Nesson, Barbara Buckley, K. Frank Austen, Hiapo Emmons-Shaw, Eugene Braunwald, Julie Cote, John Witherspoon, Kelly McCann, Art Siegal, Timothy Dugan, Marshall Wolf, Denise Marchionda, Bev Woo, Carlos Brocatto, Barclay Adams, Larisa Kradinova, Arnie Epstein, Jonathan Bennett, Martin Vosseler, Jack Geiger, Bob Haggerty, Michael Stewart, Joe Murray, David Napier, Lawren

Daltroy, John Marr, Arthur Kleinman, Ed Kass, Charlie Davidson, Roger Mark, Bob Master, Ben Siegal, Dick Bail, Walt Willett, Bob Meenan, Alex Langmuir, Charles Cudjoe, Bing Chang, Bob Hartley, Celeste Robb-Nicholson, Paul Fortin, Kathy Swan Ginsburg, Nizar Mohamed, Oliver Sangha, Sang-Cheol Bae, Deh-Ming Chang, Chris Fanta, David George, Chuck Ratzlaff, Ian Tsang, Mary Ni, Howard Koh, Lincoln Chen, Paul Farmer, Barbara Herbert, Jean McGuire, Jennie Riley, George Hatch, Whitney Hatch, Jean and Chris Angell, Howard Hiatt, Don Berwick, Atul Gawande, and Tom Lansdale.

The Alan Mason Chesney Medical Archives of the Johns Hopkins Hospital Institutions provided the photo of Ann Purdy as a medical student at Hopkins.

Dr. Neal Roberts, a beloved teacher and history of medicine buff, started his career in the laboratory sciences and helped us make sense of the complex work done more than 60 years ago described in the section, Discovering the Auto-Immune Basis of Systemic Lupus Erythematosus.

CHAPTER 1

BACKGROUND

Born in 1925, Halsted Reid Holman was named after two famous surgeons at Johns Hopkins Hospital. He was raised by two prominent physicians, who had three sons, all of whom became physicians. Holman came of age at a time of enormous changes in society and in medicine.

The Flexner report of 1910 had exposed the deplorable quality of medical education, precipitated the closing of a majority of the 155 medical schools, leaving only 66 by 1935, and ushered in scientific medicine (Flexner, 1910).

World War I, “the war to end war” (1914–1918), and its aftermath laid the ground for the next great conflagration and the world-wide depression, 1939 to mid-1940s. Although the war was generally supported, the immense loss of life for what were ultimately regarded as futile reasons, caused a sea-change in attitudes to militarism and spawned anti-war and peace organizations world-wide. The Great Depression caused widespread suffering and made it possible for new leaders and ideologies promising relief to come to the fore.

The Second World War (1939–1945) embroiled more than 100 million people. In a state of “total war,” 112 or so countries invested their entire human, economic, industrial, and scientific resources into fighting for survival. Seventy million people perished in the deadliest conflict in human history. Eleven to seventeen million civilians were murdered from Nazism: six million Jews, two million ethnic Poles, and four million who were deemed “unworthy of life,” which included the disabled and mentally ill. Between 90,000 and 166,000 people in Hiroshima and 60,000–80,000 in Nagasaki perished in the atomic bombings of Japan (Hastings, 2011).

With such horror, World War II’s profound impact on every aspect of human affairs, then and for generations to come, is impossible to fully portray. No one alive during those years was unaffected. The enormity of the deaths and institutions led to a dramatic re-grouping and rebuilding, as if the whole world were being reset. One can surmise the survivors’ relief as the devastation finally ended and “can-do” resolve and good over evil triumphed. Those returning home were determined to make the most of the

opportunities presented to them and to get on with their lives, as society was committed to helping them.

World War II ended the worldwide economic depression, fueled biomedical and other research, brought women and African-Americans into the work force, assisted millions of military veterans' higher learning, started the military-industrial complex and the Veterans Administration Healthcare system. The peace movement's doctrines became a part of the mainstream political discussion.

The system for controlling wages and prices (a necessity to ramp up US production for its own survival and its depleted allies) capped wages and made health insurance benefits a bargaining chip for employee-starved industries. This move essentially linked health insurance to employment, resulting in millions of uninsured generations later.

Science-based medicine was in its ascendancy, and individuals in their 20s and 30s—many maturing more quickly with military experience—were trained in the new science. The Servicemen's Readjustment Act of 1944 (G.I. Bill) supported buying a home or starting a business with loans up to \$2000 a year, or up to \$1040 a year if they could not find a job, \$500 a year for college tuition, and \$75 a month for living expenses. In 1940, the average worker earned less than \$1000 a year and attended college with a cost of about \$450 at state institutions and \$980 a year at private universities (considered modest amounts now). The G.I. Bill put two million veterans through college and graduate school. By the late '40s, almost half of the male students were on the G.I. Bill.

From 1945 to 1959, secret Operation Paperclip brought over 1600 experts in aeronautics, rocketry, material science, medicine, biological and chemical weapons, electronics, and physics. They fled from Nazi Germany and other countries to the US to hasten the end of war.

As a percentage of the Gross National Product, total health care costs between 1950 and 1955 were about 4%. By 1960, when Holman became Stanford's first Chief of Medicine in its new location, the percentage had doubled and commenced its inexorable increase. During the same period, the National Institutes of Health fueled the growth of biomedical research and the training of clinician scientists in the laboratory techniques and mechanistic thinking in finding the cause and cure of human diseases. These developments allowed Holman to build a world-class biomedical research center with the best and brightest.

In 1960, by age 35, Holman had already hit over .500 as a baseball batting champ and All Star at the University of California Los Angeles; had been a leader in the International Union of Students in Denmark; had his passport recalled by the State Department; stripped of a Yale internship

before he even started because he refused to sign the loyalty oath; was harassed and followed by the Federal Bureau of Investigation; grilled before a Senate committee on subversive activities; spoke on the perils of nuclear arms to hundreds for the Scientists Committee for Radiation Information; and had already made a major medical discovery.

At Stanford, he was involved with building one of the world's leading academic institutions, but then questioned whether the fruits of research were really making a difference to people or reaching the needy. He saw that the technological capacity to do more and the growing demand of the public for it were on a collision course; that the increasing monetarization of healthcare and the growing medical-industrial complex were widening the gap between patients and their providers; between what we know and what we do as a society for healthcare; and that those with the most to gain and to lose in healthcare—i.e., the patients—were powerless.

He then reinvented himself in population systems health trying to solve real problems in organizational experiments. In contrast to the reductionism of laboratory-based research of his own education, he embraced complexity, tested ideas publicly, made action researchable and research action-oriented. He was convinced that progress could only come if one involved the creativity and commonsense of everyone.

In the '60s, John Kennedy, Malcolm X, Martin Luther King Jr., and Robert Kennedy became martyrs for different visions of America. Civil disobedience in support of civil rights and opposition to the Vietnam War spread from Selma, Montgomery, to Greensboro, Birmingham, Washington, DC and colleges in Ann Arbor, Berkeley, Cambridge, New York and other campuses throughout the country. As chief of medicine, Holman led and participated in teach-ins and public debates on the great social and moral issues of the day. His family spoke out in support of social justice and peace and resisted immoral, unethical action in their own way, and they often paid the price.

Over nearly a century, Halsted Holman witnessed and was a participant in the major events in medicine and efforts to sustain it: the growth of biomedical medicine and biomedical research and academic health centers, the birth of Medicare and Medicaid, the growth of the health insurance industry and the medical-industrial complex, failed efforts to develop a national system, efforts to stem the growing cost of healthcare, growing health inequality, erosion of the doctor-patient relationship, and attempts to reform them. After he retired, the historic Affordable Care Act under Barack Obama reduced the uninsured non-elderly Americans from 44 million in 2013 (the year before its major provisions went into effect) to less than 28

million at the end of 2016. With his surprise election, Trump was intent on eliminating all evidence of Obama's legacy.

CHAPTER 2

ROOTS OF A SOCIAL ACTIVIST IN MEDICINE

An apple never falls far from the tree
—English Proverb

As a second-generation immigrant, Holman had models of social conscience and commitment from his parents, both of whom were physicians and fierce believers in doing what was right even if doing so meant flaunting convention or taking untrodden paths. Both parents also experienced prejudice and racism. Their devotion to principled behavior and excellence left an indelible imprint.

His father, Emile Frederic Holman (1890–1977), was born in Moberly, Missouri and was the son of a Methodist minister. The family had fled Bismarck's Germany before World War I and moved to southern California during his childhood. Emile entered Stanford in 1907 but dropped out in his sophomore year to learn shorthand and typing, so that he could support himself. Soon thereafter, he re-enrolled at Stanford and worked for the President, David Starr Jordan, and graduated Phi Beta Kappa. He toured the Balkans for three months as Jordan's secretary while Jordan lectured about the perils of war.

In 1914, Emile went to Oxford University as a Rhodes Scholar but interrupted his own studies to volunteer as an ambulance driver in a French Army food relief program. The other Rhodes Scholars that year were Wilburt Davison, founder of Duke University Medical School, and Wilder Penfield, a neurosurgeon and founder of the Montreal Neurological Institute at McGill University. After the beginning of World War I, Emile became self-conscious of his German name and changed his last name from Hollmann to Holman and began omitting his middle name, Frederick, or spelling it Frederic when used.

Encouraged to go into medicine by Sir William Osler at Oxford, Emile entered Johns Hopkins Medical School, upon returning to the United States, and was the last Chief Resident at Hopkins under William Stuart Halsted. Halsted was best known for his emphasis on strict aseptic surgical technique, early championing of newly discovered anesthetics and radical

mastectomy for breast cancer. Throughout his life, Halsted used cocaine and morphine, but neither were illegal then. Emile did not believe that Halsted was addicted. Emile also worked with Mont Rogers Reid whose surgical handbook is still in use today. Halsted Reid Holman was named after these two physicians who had so impressed his father.

In 1923, Emile went to the Peter Bent Brigham Hospital in Boston, which had only opened ten years before, to work under Dr. Harvey Cushing. By then, Emile had been at Oxford, the Royal College of Surgeons in Edinburgh, the Rotunda Hospital in Dublin, and the National Hospital in London. After three months at the Brigham, his superior, Dr. Daniel Elkin, left because of a family illness, so Holman took over as Resident Physician now termed Chief Medical Resident. In those days, the Resident Physician served both medicine and surgery (Joel T. Katz, personal communication, 2021). A year later, Emile joined the faculty at Case Western Reserve and was then recruited to Stanford in 1926, at age 36, to chair the Department of Surgery—a position he held for 30 years.

Between 1926 and 1955, he was also a frequent Visiting Professor at the Peking Union Medical College (PUMC) in China. Built in 1906 with the largesse of John D. Rockefeller's China Medical Board and modeled after the Johns Hopkins Hospital, the PUMC was the first western style academic medical center.

Emile was particularly interested in politics and was a strong opponent of fascism. After the attack on Pearl Harbor, at age 51, he volunteered for the Navy by obtaining a special waiver for his age and took a three-year leave from Stanford. His first assignment was Mare Island, near San Francisco, to care for wounded troops. There he earned recognition for successfully removing a bullet from a soldier's heart. But he made himself unpopular with the other physicians because of his insistence that they be available all night to treat urgent cases. This led to his transfer to one of the Solomon Islands in the Pacific, where he established a facility that treated both injured Japanese and Americans and trained the staff in surgery and wound care in a tent, nicknamed "Island Medical School."

Emile was a visionary in surgery. He was convinced that the cardiac abnormality, patent ductus arteriosus, could be cured by closing the abnormal communication surgically but was dissuaded from performing the procedure by a colleague. In 1935, Dr. Robert Gross in Boston conducted the procedure in a seven-year-old and introduced a new era of heart surgery. In 1923, while Emile was Chief Resident at the Peter Bent Brigham Hospital, he conceived the idea of grafting skin from a mother to a severely burned child. His fundamental observations on rejection of tissue grafted onto another person lay dormant but was of such fundamental importance

to modern burn management that he was honored for his contribution at the International Congress of the Transplantation Society in 1972—nearly a half century after his original paper was published.

Halsted's mother, Ann Peril Purdy (1889–1978), was born in Waterloo, Canada of a farm family of Scotch-Irish descent.

I was reared in a community where good doctors were rare and public health had not penetrated. We lived under century-old French laws, which allowed women no legal rights to their own property, their children and, in practice, none to their own persons.

Epidemic diseases were common, and active tuberculosis, which had decimated my mother's family, was always with us, as it is still in many parts of the world today. Death and disease were our frequent visitors. Perhaps these things, and my deep compassion motivated me toward the study of medicine, and I day-dreamed of being a doctor with Jane Addams in Hull House in the Chicago slums.

My brother, age six, who had already imbibed the prevailing social atmosphere, shouted at me, "Bring my boots." When repeated demands brought him no boots, he continued, "Don't you know that girls are born to wait on boys?" The prevailing educational attitude was that women needed no education. The only young woman who had gone to college before me was the butt of ridicule.

I took my A.B. degree from McGill University though majoring in the premedical sciences. This was made possible by Dr. Robert Ruttan, then professor of chemistry and former dean of the School of Medicine. He maneuvered the premedical courses, previously given only to medical students, into the university courses open to all students. My training was excellent, with the exception of embryology, but my reception was extremely hostile. I was hissed in nearly every class until Dr. Ruttan told me to wait in the wings until he had entered the classroom and that he would never leave the room until I was safely out. The day before the embryology classes began, he called me to say that I could not be admitted because there he might not be able to protect me from bodily injury.

Having won top honors in science, I hopefully applied for admission to McGill Medical School, and was promptly refused. Scuttlebutt from Montreal Women's Club had it that the medical faculty had threatened mass resignations if a woman was admitted. . . .

I then applied to Johns Hopkins Medical School into which women had been bought on a 10% quota by a wealthy Baltimore woman for a half million dollars when the Medical School was hard up. There we were accepted but not welcomed. We were, however, very fairly treated except perhaps in the higher appointments. As I left one of my first classes, a young classmate approached me and said, "What are you, anyway? You are not a man, you are certainly not a woman. You are an unsexed thing studying medicine out of morbid curiosity."

One of the previous deans of Yale Medical School frequently said, "My wife is a doctor and she never did anything after I married her." The wife of the dean, the mother of a large family, said to a medical friend, "I am allowed out every Thursday afternoon like the rest of the housemaids."

One of the daughters of a dean of medicine at Hopkins told me that her father had offered each of his three daughters ten dollars for every class she flunked in high school—a novel way to settle the troublesome question of women in medicine.

Still in August 1968 no woman has been admitted to membership in the Northern Branch of the California Academy of Medicine, nor ever been permitted to attend a single meeting.

I was frequently told that I was usurping the place of a man who needed it, only to get married and drop out. Every dropout is an obstacle in the path of the women who follow, anyone of whom may be a Curie, a Sabin, a Pearce, a Baumgartner, or an Abbott, all of whom have made significant contributions to medicine. . . .

This is how I tried to fill the role of wife, homemaker, and mother. Our professor of medicine said in his farewell address to the men in my graduating class, "Your greatest danger shall be the woman you marry. You must needs [sic] forge ahead. She will remain where you found her." To the woman in medicine I would paraphrase it thus, "Your greatest danger shall be the man you may marry. You must forge ahead. He may wish to keep you where he found you." (Purdy, 1968)

Ann Purdy was the only person in her family to attend college, graduating from McGill in 1915 as one of the school's first female graduates. At Johns Hopkins, she was one of its earliest female graduates. She met Emile there and they married in 1921. Not wanting to lose her identity to a man, she remained Dr. Ann Purdy. When Emile accepted the position at Case Western, they moved to Cleveland, where Halsted was born on January 17, 1925. Six months later, they moved to San Francisco, where Stanford Medical School's clinical departments were located.

Ann was appointed Clinical Professor of Pediatrics at Stanford and saw largely pediatric cardiology patients, almost 30 years before the formal beginning of the specialty in the American Academy of Pediatrics. However, she became unhappy with the way she was treated by the male medical establishment, complaining to her family that some of her patients had been "stolen" by male colleagues for publication. She preferred to practice at the then Children's Hospital in San Francisco, finding its focus on women and children more congenial.

Three years after their arrival in San Francisco, Ann gave birth to fraternal twins, David Holman and Shawn Purdy. Ann thought it only fair for the twins to have the names of both parents, but Shawn eventually changed his last name to Holman because of the confusion caused by his

having a different last name. Their first son before Halsted had died in infancy from failure to thrive; they never talked about it.

With three young children and a demanding schedule at Children's Hospital, Ann set up an office to see patients in their home at 722 Funston Avenue, San Francisco. Her sons got used to encountering patients covered in white sheets walking up and down the stairs in their front hall, as their mother assessed her patients' exercise tolerance and heart function. She described the home that she ran as wife, mother, and pediatric cardiologist which her sons experienced:

I wished to know if an old-fashioned home could be maintained by a busy professional woman. As an inexperienced housewife with inefficient maids, I would liken it to mountain roads, "Dangerous but passable," improving with each season. I found good nursemaids, young of mind, legs, and heart, sometimes among the needy college students. We kept a medical student in residence to cover our necessary nighttime absences. We moved to the flat, bicycle-riding land beside Golden Gate Park, rich in interest, play areas, and children. There was no neighborhood playground, so we equipped our backyard, and I invited all the children in.

I opened my office in my home (an old Baltimore custom), where I could see the teenagers gaming on the quiet street in front, and hear the younger ones in the back. If a child was slightly ill I telephoned him frequently. If he was more seriously ill, I commuted, so to speak, between patients.

Dinner was the high point of the day. I dressed and studied for the dinner table, where I reduced world happenings to the children's level in my best Churchill English, secure that the peer education of the street and the schoolyard would correct any stuffiness.

As the era of the freedom of the young approached, one of my sons announced that his father and I were to leave the house to him and his partying friends. I steadfastly refused to abdicate. The struggle was long and hard, and I came out scarred but with my head unbowed—renamed "Old Ironsides."

Then followed the era of the teen-age high allowances, private cars, remote motels without chaperones, alcohol-and temptation. This, to the best of my knowledge, we escaped. (Purdy, 1968)

Halsted remembers his parents' relationship as intellectually compatible but not very warm. Dinners were formal. Ann commonly wore long gowns and Emile wore suits, but the kids could be in dirty play-clothes. Medical phone calls often interrupted dinners; the dinner discussions would be about patients as the parents saw many patients together. They were both devoted to their work and, except for medical colleagues, didn't entertain at the house or have much of a social life outside. Emile enjoyed gatherings of medical colleagues and gaining recognition, but Ann was adamantly

opposed to any form of what she considered self-adulation. Halsted's disdain for celebrity may have come from her. Self-nicknamed "Vinegar Ann," she had a few women physician friends—there weren't many at that time—but did little for "fun" other than what Hal recalls as "stereotypical family vacations," such as going to Alaska.

Ann was politically active throughout her entire life. She modeled her way of collaborating with her young patients and their families for the children in her home office. Halsted remarked that neither she nor his father knew who Karl Marx was. But Emile was a militant progressive and anti-fascist and Ann was a passionate humanitarian. One need not look further for understanding his lifelong political activism, his penchant for interacting with patients, and his humanitarian thinking than his parents and particularly his strong-willed mother.

During World War II, Ann participated in efforts to aid Allies abroad and advocated for the improvement and expansion of America's school lunch program (Purdy, 1944). After the war, distressed that some doctors refused to see Japanese patients, she made a point of treating them. Later, during the 1960s, she got involved in local politics: writing many letters and delivering street-corner speeches to oppose the proposed super-highway through Golden Gate Park—a battle she and other activists ultimately won. She kept a large collection of the New York Times, intending to write a "history of the world" after she retired, but the project languished as her health declined.

Although Emile was against war and a fervent anti-fascist even before World War I, he did not share his wife's progressive politics. He was often in the minority in family political discussions, opposed by Ann and Halsted and frequently by David and Shawn as well. Emile liked to play the contrarian to see how people would respond without revealing much about his own position.

Looking back, Halsted recalls childhood as pretty ideal and is grateful that his parents allowed him so much freedom. This freedom, nurtured from such an early age, was a major source of his independence and self-assurance. Growing up, each boy had assigned chores. Their home was a local hangout for their friends. Halsted felt "absolutely free to do almost anything he wanted," including driving locally without a license or racing home-built coaster wagons down steep San Francisco hills. His parents were "hands off" and didn't ask about his mediocre grades, his friends or his girlfriends, and attended only one of his sporting events—his football team's victory for the city's championship played in Kezar Stadium.

Emile and Ann put no pressure on Halsted or his brothers to go into medicine. Growing up, he wanted to become an aeronautical engineer, so

his parents introduced him to the engineering faculty at Stanford. He pursued this interest after high school, working briefly in a small factory making parts for airplanes, a metal forging shop making sleeve bearings, and a shipbuilding factory as a layout assistant. Workers he met told him he was crazy to consider aeronautical engineering: “they’d have you designing cockpit covers, and that’s not something you’d want to do.” Nevertheless, all three sons became physicians: Halsted in rheumatology, David in cardiopulmonary medicine, and Shawn in general surgery.

Stanford (1942–1943) and UCLA (1943–1944)

In early 1944, the Allies started to have victories in the war against the Axis powers. Franklin D. Roosevelt’s State of the Union Address outlined the measures needed to bring the war to a successful conclusion and his vision for a post-war America:

It is our duty now to begin to lay the plans and determine the strategy for the winning of a lasting peace and the establishment of an American standard of living higher than ever before known. We cannot be content, no matter how high that general standard of living may be, if some fraction of our people—whether it be one-third or one-fifth or one-tenth—is ill-fed, ill-clothed, ill-housed, and insecure.

This Republic had its beginning, and grew to its present strength, under the protection of certain inalienable political rights—among them the right of free speech, free press, free worship, trial by jury, freedom from unreasonable searches and seizures. They were our rights to life and liberty.

As our Nation has grown in size and stature, however—as our industrial economy expanded—these political rights proved inadequate to assure us equality in the pursuit of happiness.

We have come to a clear realization of the fact that true individual freedom cannot exist without economic security and independence. “Necessitous men are not freemen.” People who are hungry and out of a job are the stuff of which dictatorships are made.

In our day these economic truths have become accepted as self-evident. We have accepted, so to speak, a second Bill of Rights under which a new basis of security and prosperity can be established for all—regardless of station, race, or creed. (Roosevelt, 1944)

Holman had no firm political views or career plans when he entered Stanford. Two courses during freshman year changed that: Biology inspired him to become a physician and a required History of Western Civilization course on Western thought introduced him to Karl Marx. Holman was drawn to Marx’s view that an economy should create the greatest wellbeing for the greatest number, and that an ideal socialist economy might even

bringing an end to exploitation and poverty—noble goals, he thought, at the time, however unrealistic they seemed for the United States. He enjoyed his classes, his grades improved, and he played second-string halfback in freshman football.

While Holman was living the dream, the world was at war. The country was dominated by isolationist thinking while its leaders were quietly increasing the country's production capacity and manpower for the inevitable entry into war. The first peacetime draft, the Selective Training and Service

Act, was passed in 1940. Turning 18 in 1943, Holman registered for the draft, like all the men his age, and volunteered for the Navy's V-12 program to accelerate medical training to ensure enough doctors for the duration of World War II. The military recruited students, especially premeds, into the armed services, accelerated their undergraduate education, and sent them directly to medical school. Although only a Stanford freshman, Holman applied to medical school and was accepted at Yale and Johns Hopkins. The Navy then sent him to the University of California Los Angeles (UCLA), which had a V-12 program, for his second and last year as an undergraduate.

At UCLA, Holman did well academically. He played football as a first-string half back on the varsity team for a year, until he separated his shoulder. His big breakthrough was in baseball. Dormitory mate Bobby Brown, a future physician, recruited Holman and another student to hit and shag balls with him. Encouraged by Brown, Holman joined the UCLA baseball team. By the end of the year, he was a batting champion with an astounding batting average of .506, played the outfield and first base, and named a UCLA All-Star. Scouts from the Chicago White Sox and San Francisco Seals minor league tried to entice him into professional baseball, but he declined.

Bobby Brown "The Golden Boy" went on to a fabled career in professional baseball. He played third base on four World Series championships with the New York Yankees and batted .439 while studying for his medical degree from Tulane. Afterwards, he practiced cardiology and later became President of the American Baseball League.

Yale Medical School (1944–1949)

After one year at UCLA, the Navy sent Holman to Yale to begin medical school. He continued varsity baseball his first year at Yale, but soon shifted to his medical training. He excelled in class, in his clinical rotations, and had high scores on the national board exams. After his second year, he received the J. H. Brown Fellowship in Biochemistry and took a year off to do basic research at Yale. He was elected to the national medical honor

society, Alpha Omega Alpha, the following year. At graduation, he was awarded the Parker Prize for the student considered most likely to succeed in the practice of medicine.

In the Yale library, he met Barbara Lucas studying public health. She was one of two daughters who earned doctoral degrees in an era when women rarely pursued advanced degrees. Raised in a family that revered learning and education, her father was a successful, self-made book publisher in Ohio. Skipping two grades and having read *Les Misérables* in French six to seven times, Barbara started Bryn Mawr College at age 16 and graduated in 1942 in philosophy (“Reading Descartes...or Spinoza... finding out new things, staying up late...Studying philosophy was the intellectual equivalent of a good orgasm.”). She wanted to be an architect or engineer but a male advisor said, “I think you’re suffering from gender confusion.” She also considered medicine but thought her chemistry grades were not good enough. In 1945 to 1946, she was an Army nurse caring for quadriplegic soldiers returning from World War II. She was deeply moved by observing how one’s state of mind and a positive attitude could affect the survival of soldiers with severe war injuries. She and Halsted married in 1955 after she got her Master’s in Nursing and a Ph.D. in Public Health from Yale with a one- and three-year old underfoot. Her doctoral thesis was on rooming-in, a new model in obstetrics (B. Holman, 1961).

Moving to California in 1960, her only option for continuing her work in public health was at the University of California, Berkeley. However, the commute with three children at home became impossible and she decided to stay at home. While raising a family, she worked on a study demonstrating how racial discrimination and work stress contributed to racial disparities in mortality (Howard and B. Holman, 1970) and stress-related diseases in transit drivers (D. Sharp et al., 1988; Krause et al., 1997; Ragland et al., 1997; 2002).

Barbara was an intellectual, reserved and very shy. Being a faculty wife having to attend official functions was not easy for her. Quietly generous, principled, and resolute in the face of adversity, she also had a mischievous humor that disarmed people. Her empathy for the marginalized was profound. Deeply believing that all people were equal and deserving of respect, she passionately supported the Civil Rights and the anti-Vietnam war movements. In the 1980s, when HIV was devastating the gay community and the community was being vilified, she ardently supported gay rights, her nephew, Charlie Barber, a gay rights activist, and educational programs for underprivileged youth. She raised three very different children and helped each find their voice through victories and setbacks. Her eldest son, Michael Holman wrote:

She and I had our differences, and I've come to recognize many more of what she (and Hal) brought all 3 of us up to believe as central to our humanity and beliefs, even as the 3 of us differ from each other. Alison and I have talked several times over the years about our mom's emphasis on humanity above all—no distinctions between people of different skin tones, sexuality, gender, class, education. ... I could go on. To say this is different from the dominant culture today, or of the 1980s, 1990s, 2000s and/or 2010s is [an] extreme understatement.

Association of Interns and Medical Students (1946–1949)

Like many students at the time, Holman was inspired by the democratic ideals emerging from World War II and found many kindred spirits at Yale. Having his curiosity piqued about Karl Marx in college, Holman attended evening discussion groups on Marxism led by a Yale Medical School faculty member. The group also discussed the philosophy of the Communist Party, and Holman joined it to express support for its ideals but was never active in the Party.

He and other medical students helped revive the Association of Interns and Medical Students (AIMS), an organization with progressive ideals that had been dormant during the war. They formed a chapter of AIMS at Yale and worked with chapters at other schools in the Eastern, the Midwest, and Howard University and Meharry Medical College, two traditional African-American institutions. AIMS had three main goals: (1) decent salaries for medical interns and residents (Holman's pay as an intern in 1952 would be \$13/month plus room and board); (2) appropriate health care for medical students; and (3) an end to racism in medical training and care.

Each chapter set its own course in pursuing the organization's goals. The Yale chapter combated racism through a Yale–Meharry exchange program, so each could learn what life was like at the other school. AIMS also promoted similar exchanges at a few other predominantly white medical schools but could do nothing to directly influence admissions policies or other forms of discrimination. Holman was elected President of the national organization; other officers included an African-American medical student from Meharry and a woman from Women's Medical College in Pennsylvania.

AIMS was accused by the American Medical Association (AMA) of being a Communist organization. Holman resigned from the Communist Party a few months after joining it so as to not compromise his organization.

The AMA's attacks continued after Holman graduated from Yale and in 1950, they formed an alternative organization: the American Medical Student Association (AMSA), to counter AIMS. The AMSA initially took

more conservative positions on most issues, as the AMA intended, but eventually evolved into a progressive organization which continues today.

In the East, future cardio-prevention pioneer, Jeremiah Stamler and future Nobelist Bernard Lown (see Chapter 3) were leaders in the AIMS. Stamler, the son of Russian Jewish immigrants, later set up the first Heart Disease Control Program in the country. He was also subpoenaed before the House Committee on Un-American Activities (HUAC). In response, he and colleague, Yolanda Hall, filed a suit against the committee arguing that it was unconstitutional. The suit was rejected but they appealed. Stamler refused to testify, walked out of the hearing, and was indicted for contempt of Congress. In 1973, the government dropped the indictment and Stamler dropped his suit. Many believe that the suit was an important factor in the HUAC's disbandment.

Truman's Attempt at Universal Healthcare

In 1945, just seven months into a presidency he inherited from Franklin D. Roosevelt, Harry Truman who left Spalding's Commercial College after a year, proposed "universal" national health insurance. In his remarks to Congress, he set forth five goals of the plan which are still relevant today.

The first addressed the number and disparity of physicians, nurses and other health professionals, especially in low-income and rural communities where there were "no adequate facilities for the practice of medicine" and "the earning capacity of the people in some communities makes it difficult if not impossible for doctors who practice there to make a living."

The second was to develop and bolster public health services to control the spread of infectious diseases and improve sanitary conditions across the nation and maternal and child health care.

The third was to increase the nation's investment in both medical research and medical education.

The fourth addressed the high cost of individual medical care. "The principal reason why people do not receive the care they need," Truman noted, "is that they cannot afford to pay for it on an individual basis at the time they need it. This is true not only for needy persons. It is also true for a large proportion of normally self-supporting persons."

And the fifth focused on the lost earnings resulting from illness. "Sickness," Truman explained, "not only brings doctor bills; it also cuts off income."

At first, things looked hopeful for the proposal as Democrats still controlled the House and the Senate and a number of prominent Americans supported it. However, almost as soon as the bill was announced, the

American Medical Association (AMA) capitalized on the nation's paranoia over the threat of Communism and attacked the bill as "socialized medicine" and Truman's administration "followers of the Moscow party line."

Health insurance continued to be a major part of his campaign platform in 1948. Even though he was re-elected, his political power was no match for the AMA's lobbying and advertising efforts and the bill quietly died again. Truman called the failure to pass a national health insurance program one of the most bitter and troubling disappointments of his presidency.

The United States would continue its fight over national healthcare during Lyndon B. Johnson's presidency. In 1965, Johnson signed the Medicare Act of 1965, which would provide healthcare to US citizens age 65 and older. Harry and Bess Truman were present at the signing, and President Johnson dubbed former President Truman "the real daddy of healthcare."

International Union of Students and Copenhagen (1949–1952)

After medical school, Holman was selected for a National Research Council Fellowship in Biochemistry at the Carlsberg Laboratories in Copenhagen, Denmark. Since he would be abroad, Holman agreed to represent AIMS in the International Union of Students (IUS) in Prague, Czechoslovakia. The IUS had grown out of World War II and had chapters in 62 countries "to defend the rights and interests of students, to promote improvement in their welfare and standard of education, and to prepare them for their tasks as democratic citizens" (IUS Constitution, 1946). The President of the IUS was Joza Grohman, a fierce resistance fighter and leader of the Czech underground. Holman was asked to be the IUS's American Vice President, and his responsibility was to help improve student health services, which were very meager in many countries. Holman traveled back and forth from Denmark to Prague and other countries on IUS work, giving him a close-up look at events unfolding in the provision of health services in many European countries and cultures. It would be an invaluable experience which would influence his later work in thinking about population healthcare.

CHAPTER 3

ASSENT AND DISSENT: MCCARTHYISM AND MEDICINE

I have here in my hand a list of 205—a list of names that were made known to the Secretary of State as being members of the Communist Party and who nevertheless are still working and shaping policy in the State Department.

—Senator Joseph McCarthy, 1950

We must not confuse dissent with disloyalty. We must remember always that accusation is not proof and that conviction depends upon evidence and due process of law. We will not walk in fear, one of another. We will not be driven by fear into an age of unreason, if we dig deep in our history and our doctrine, and remember that we are not descended from fearful men.

—Edward R. Murrow, 1954

Background

After World War II, the United States entered the Cold War to reduce Soviet power and influence. A series of setbacks to US interests played into the perception of a growing Soviet threat. In 1949, the Soviet Union detonated its first atomic bomb, China became communist under Mao Zedong, and the Nationalist government supported by the US fled to Taiwan. Korea had endured serial occupations by China, Japan, and Russia until the end of World War II. Planners had assumed that North and South Korea would be reunified after elections in the North and in the South, but in 1950, the communist North Korea invaded South Korea and the US declared a “police action” to prevent its intrusion. From 1950 to 1953, the United States and China fought to a standstill in Korea. In 1953, an armistice between the Koreas established a new border and a surrounding demilitarized zone.

With this backdrop, in 1950, Senator Joseph McCarthy charged that there were 205 communist spies in the State Department who were selling

out the United States: “When a great democracy is destroyed, it will not be because of enemies from without, but rather because of enemies from within.” For the next four years, prominent writers, actors, directors, government officials, and cultural and social leaders were called to testify before his committee about their knowledge and involvement in the communist conspiracy. In 1951, McCarthy even accused President Truman as a communist agent:

He is their captive. The President is not master in his own house. Those who are master there not only have a desire to protect the sappers and miners—they could not do otherwise. They themselves are not free. They belong to a larger conspiracy, the world-wide web of which has been spun from Moscow.

Federal, state, local governments, and private groups created blacklists of people and organizations suspected of being communists. Being on a blacklist, one could lose their job and have their life and reputation ruined. Only ten percent of the actors, writers, directors and producers on the Hollywood blacklist ever worked again.

McCarthyism and the anti-communist hysteria it created threatened Americans’ basic rights. Ordinary people wondered whether communists were in their midst or not. Some charged others of communism to defeat their competition. Others, fearing that someone would accuse them, charged other people first. Americans were frightened to speak their mind or to talk about their opinions for fear that they would be accused of being communists or sympathizers.

Although far-right radicals were the bedrock of McCarthyism, those who opposed internationalism, social welfare provisions of the New Deal, and efforts to reduce social inequalities also joined. Provision of public health services, such as vaccination, mental health care services and fluoridation, were deemed by some to be communist plots to poison or brainwash the American people.

The Director of the Federal Bureau of Investigation (FBI), J. Edgar Hoover, was a fervent anti-communist and designed President Truman’s background checks of employees by FBI agents. Thousands of government workers lost their jobs. From 1951 to 1955, the FBI distributed anonymous files alleging Communist affiliations of teachers, lawyers, and others. Many of the accused were fired and neither told what the accusations were nor who their accusers were. The FBI also burglarized, opened mail, performed illegal wiretaps, and conducted a covert “dirty tricks” program—the Counterintelligence Program (COINTELPRO)—to collect supposedly

damning and personal information to create suspicion that a person was an FBI informer, spreading rumors through anonymous letters and press leaks.

State Department Demands Holman's Passport

By 1950, the State Department decided that American youth abroad should not be working in organizations like the International Union of Students (IUS) which collaborated with people in socialist-bloc countries. Holman received a telegram from the American Embassy in Denmark telling him to relinquish his passport, in effect prohibiting him from traveling anywhere except back to the United States. He ignored the telegram and he and Barbara, passports in hand, moved to Prague, where he began working full-time for the IUS. Since he could no longer travel without risking losing his passport, he dealt mainly with the student groups in Eastern European countries. In late 1951, he was ready to return to Yale and continue his medical training.

With the confiscation of his passport always looming, Holman and Barbara decided to re-enter the US by a less conspicuous route: taking a freighter in Athens, Greece bound for Canada and entering the US by train. They then headed for New Haven where Holman met with John Punnett Peters, Chairman of the Department of Medicine, and applied for an internship. Peters offered him a position starting July 1952.

Yale Internship taken away

After returning to San Francisco to see his family, Holman got a call from Peters, "You better come back here—they're trying to take your internship away from you."

Holman and Barbara immediately returned to New Haven where he learned that if he wanted to keep his Yale internship, he would have to sign a loyalty oath that would be satisfactory to the House Un-American Activities Committee. Peters could not have been more sympathetic to Holman but let the process play itself out. The final judgment would be made by the Executive Committee of Yale Medical School consisting of about a dozen Department Chairmen.

The rebellious son of an Episcopal minister, Peters had been sent to a military preparatory school and then to Yale, where he studied classics and won a varsity letter in diving. As a social activist, he led some 400 physicians who spoke out in support of medical care for the indigent, medical research, the improvement of medical education, and the consolidation of federal health and medical activities into one department.

The recommendations were attacked as radical, dangerous, and leading to “state medicine.” In 1953, Peters was fired from a \$50 a year consultant position on a Public Health Service committee because of an anonymous accusation of disloyalty. Dr. Peters fought the case to the Supreme Court, claiming the right to face his accusers, and he was eventually exonerated.

Holman refused to sign, “I swear that I am not and never have been a member of the Communist Party or any other subversive organization advocating violent or anti-democratic programs or overthrow of the United States government.” Technically, he had been a member of the Communist Party for a few months before he resigned, but he strongly objected to the oath as a matter of principle and considered it an intrusion of government into the political views of its citizens and it had ensnared and destroyed the lives of many innocent people.

Before the Executive Committee met, Holman met with each member separately. Most of the committee already knew Holman from his time at Yale Medical School and were aware of his work with AIMS and the IUS. Holman recalls two of these discussions vividly. The first person had known Holman as a medical student and expressed his appreciation for what he stood for and his political activities. “That’s good work,” he said, “but I have to be candid with you. I’m going to vote against you, and the reason is: I’m afraid. If I don’t, they may turn their attention to me.”

The second interview was with Gustav Lindskog, Chairman of Surgery, who had spent four years as a lieutenant commander in the Navy Medical Corps during World War II. Holman had done well in surgery and Lindskog said: “Holman, I really hate you. I hate everything you stand for. I think what you’ve been doing is disreputable, and I have zero sympathy for the causes you favor. However, they have absolutely no right to take away an internship because of your political positions—and so, despite what I think about you, I’m going to vote for you.” Holman never forgot the lesson: “You never know where your allies are, and you can never be absolutely certain of your friends or colleagues.” A few days later, the Executive Committee voted to expel Holman.

Montefiore Hospital Bronx, New York (1952–1955)

Losing his internship at Yale, before he had even started, Holman had to find a place to complete his medical training. Montefiore Hospital, in Bronx, New York had an open internship position. In a remarkable coincidence, Bernard Lown, a Yale house staff when he first discussed politics with Holman was now at Montefiore and told the Department of Medicine that Holman might be available.

Holman warned Montefiore officials that he would not sign the loyalty oath; after significant internal deliberations, they offered him a position knowing he was one of Yale's top medical school graduates. The hire of an academic star from an Ivy League institution who had been dismissed from his internship to a hospital with strong Jewish roots must be appreciated in the context of the prevailing anti-communist hysteria and waning anti-Semitism after World War II in medical institutions.

Between 1938 and the beginning of World War II, millions of Eastern European Jews fled anti-Semitism and the holocaust. Anti-Semitism was a fact in many American hospital training programs and medical schools. Montefiore was in the Northwest section of the Bronx—a working class area with many Catholic, Protestant, and Jewish families from Europe. The institution had begun in 1884 when Jewish philanthropists founded the Montefiore Home for Chronic Invalids for the care of the chronically ill whom other hospitals would not help. Its Jewish physicians understood what it was like to be ostracized and mistreated for one's beliefs and had a reputation for "affirmative action" and hiring those blacklisted during the McCarthy era.

Montefiore has a special place in American social medicine and in innovations for the care of groups marginalized by socioeconomic deprivation. It established one of the nation's first hospital departments of social work in 1905, accepted the first female intern in 1916, and had African-American medical residents in the 1930s. Montefiore started a Department of Social Medicine and one of the first residencies in social medicine in the country. In 1950, it built the Dr. Martin Luther King Health Center in the South Bronx to provide team primary care, an innovation of Dr. Harold Wise.

The Bronx already had a rich history when Holman trained there, long before the '90s when the South Bronx dominated its public image as a multi-ethnic, gritty city making a comeback after years of decay. Named after Jonas Bronck, a Swede and the first European settler, the Bronx's main boulevard, the Grand Concourse was inspired by Paris's Champs Elysées, and had a commerce center with broad tree-lined avenues, homes and apartments in Art Deco style, the Bronx Zoo, the New York Botanical Garden, Yankee Stadium, Edgar Allen Poe's home, and twelve colleges and universities.

The rent control that started during the war provided no incentives to unscrupulous landlords for maintaining the buildings. The buildings were often set on fire to collect insurance, or to take advantage of the city's policy that burned-out tenants should be given priority for public housing and funding for new furniture. Rampant arson in the '60s and '70s was

immortalized by Howard Cosell during the 1977 World Series broadcast when the Goodyear blimp view of Yankee Stadium captured one of these fires on air and Cosell intoned, "There it is, ladies and gentlemen, the Bronx is burning."

The Montefiore Board of Trustees was criticized by the FBI for hiring Holman but they stood by their decision. In July 1952, Holman was to start working under supervision, but before that he was summoned to appear on March 27, 1952 before the Subcommittee of the Senate Judiciary Committee probing *Communist Tactics in Controlling Youth Organizations* influences in the US student organizations. Holman had been identified as the President of the AIMS when the organization affiliated itself with the IUS which was seen as a "communist front."

Holman went to the hearing accompanied by Marshall Perlin, a New York civil rights lawyer, who had represented Julius and Ethel Rosenberg's children after the parents' conviction for espionage almost a year before. At the hearing, Donald Connors repeatedly interrupted Holman's effort to receive counsel. A little over two-thirds of the way through the testimony, Perlin was ordered to leave because of "contemptuous behavior." For almost two hours, the Subcommittee grilled Holman about his involvement with AIMS, the IUS and the names of Americans he had met in Europe. Holman held his ground: "...if you ask questions about me or my personal experiences, I may answer, but I will probably tell you that I won't answer because you won't let me have a lawyer."

When questioned about his sympathies for Communism, Holman was noncommittal, sometimes invoking the Fifth Amendment right against self-incrimination. Instead, he talked about why the IUS had been founded and the need for international peace. Nothing came from this hearing. Officials at the hospital never said anything to Holman about his interrogation, and he began his internship.

Draft Notice

Holman was an intern, an Assistant Resident in Medicine, and then Chief Resident in Neoplastic Diseases at Montefiore. He and Barbara started their family. Michael was born in 1952, Andrea 1954 and Alison 1956.

During his medical residency, Holman received a Doctors Draft notice which had started to increase the number of physicians in the military at the start of the Korean War in 1950. Holman knew that some of the doctors who had refused loyalty oaths were drafted not as officers but as privates, subjected to boot camp, and then assigned non-medical jobs. Even so, he refused to sign the loyalty oath again and received permission from the Draft

Board in Connecticut for a deferral to complete his residency. However, a month or two later, he received another notice for immediate induction “by order of the President of the United States.” He received another loyalty oath to sign, which he, again, ignored and requested another deferral from the Draft Board. Once again, the Board granted the deferral. A month later, Holman received a final notice re-assigning him to 1-A status for immediate induction, again.

Resigned, Holman reported to the induction center in New York City, and, once again, refused to sign the loyalty oath. Holman remembers the sergeant processing him—tall and imposing with battle stripes everywhere—asking, “Doc, what are you doing? Why won’t you sign this thing?” Holman replied, “There are a number of reasons. I oppose the war and I don’t think this is a legitimate way for the government to treat citizens, to force them to either accept this behavior by the government, by signing, or be victimized in one way or another if they don’t sign...” Holman continued, “Did you see the paper the other day? Albert Einstein thought that nobody should cooperate with government agents who were demanding that people sign the loyalty oath, and I thoroughly agree with him. I think this is unacceptable behavior by the government, and that it’s being used to damage people because of their political beliefs.” At that point, the sergeant stiffened, looked at Holman, pointed to his ribbons, and said, “Doc, I’ve been through it, and I think you’re probably right. But you have to be interviewed by an intelligence officer.” That interview was brief, and the officer was not interested in Holman’s reasons for not signing. If he didn’t sign, he’d be inducted into the army anyway. Holman understood and returned to work at Montefiore.

As it happened, the induction never occurred. Holman developed tuberculosis, was placed on medications, and sent to the Montefiore Sanitarium in Bedford Hills, New York for three months. He returned to Montefiore and having tuberculosis, the induction was postponed for five years by army policy. By then, the Korean War was over, and Holman completed his residency on schedule. The Doctors’ Draft was ultimately declared unconstitutional after doctors sued successfully.

Working in the Peace Movement

Like interns and residents during this period, Holman was chronically sleep-deprived and slept awake at home. Even so, in off-hours, he continued to work for the peace movement as it pertained to the Korean War. The peace movement’s principal activity was to organize the signature of the Stockholm Peace Petition, calling for an absolute ban on nuclear weapons.

At a peace meeting in the Bronx, Halsted first met June Fisher and Clarence B. Jones. Fisher would become one of Holman's Robert Wood Johnson Clinical Scholars at Stanford and, in 1980, at the University of California San Francisco, worked with Barbara Holman as she restarted her career after raising a family. Jones, an African-American raised in a foster home in Philadelphia, was studying at Columbia University and was completely taken by Holman who "looked like William Holden," had a silver tongue, and the house staff seemed in awe of him. Working out of his dormitory room, the three of them recruited students to go to a meeting at the University of Wisconsin and to be signees to the petition. In the train from Chicago to Wisconsin, Jones and Holman became life-long friends. The Peace Petition was ultimately signed by over 270 million people worldwide.

Jones became a frequent visitor, and Barbara would keep him company until Holman returned from the hospital. Jones once donned green scrubs to accompany Holman on rounds. Holman was Jones' best man at his wedding to Anne in the Church of the Master at Morningside Avenue and 122nd Street in Harlem, now a condominium. Jones described Holman as "a man for all seasons." Like Sir Thomas More, the sixteenth century Chancellor of England to whom this description was applied, he saw Holman as one who remained true to his beliefs for what medicine should be.

Jones was drafted in 1953 but discharged as "undesirable" two years later because he was a security risk for refusing to attest that he was not a member of the Communist Party. FBI reports in 1957 identified Jones as a leader of the Labor Youth League which was viewed as a Communist Party front organization. His discharge status was later changed to "honorable" on appeal. Jones eventually got his law degree at Boston University and became Martin Luther King's confidante, personal counsel, strategist for the 1963 Civil Rights March to Washington, and was involved with his historic "I Have a Dream" speech. Jones talked to King about Holman on several occasions but the two never met. (Clarence B. Jones, personal communication, 2015).

Holman's involvement with the peace movement, AIMS, and the IUS did not go unnoticed by the FBI, and he was under surveillance. Harassment by the Bureau was not uncommon. Once, FBI agents came to the couple's apartment to question him. Barbara refused to let them in. On another occasion, Holman was approached by two FBI agents, while walking home from the hospital in his physician "whites." The agents flashed their badges and wanted to question him about Americans he had known in Europe. Holman replied, "OK, just a minute," and, turning to a passerby, said, "This is really interesting. Come on over here. These men are from the FBI, and they've just stopped me in the street to question me about people I know.

Come on over and listen!” A crowd gathered. Holman went on, “These two guys are FBI agents, and they’re doing something that can’t be allowed—stopping citizens and questioning them about their politics!” People began saying, “Yeah, yeah...” Looking nervous, one of the FBI agents turned to the other and said, “We’ve gotta get out of here,” and they quickly disappeared. The crowd dispersed and Holman continued home.

CHAPTER 4

SCIENCE IN SERVICE OF HUMANKIND

The philosophers have only interpreted the world in various ways;
the point is to change it.

—Karl Marx

As Holman finished his clinical training at Montefiore in 1955, the Korean War armistice was signed, and the peace movement focused worldwide on nuclear weapons. In 1954, the Japanese Council Against Atomic and Hydrogen Bombs had been formed in Japan and in England. The Campaign for Nuclear Disarmament (CND) held its first meeting and was attended by 5000 people. Bertrand Russell was President of the CND for a time. Their marches to the Atomic Weapons Research Establishment in England continued into the late 1960s, when tens of thousands of people marched in support of disarmament, but the violence of the police and imprisonment of demonstrators for conspiracy essentially stifled the activity.

In 1958, two prominent scientists debated the issue before millions of TV viewers: Edward Teller, from the University of California, Davis favoring development of the hydrogen bomb, and Linus Pauling, from the California Institute of Technology who opposed it.

Rockefeller Institute for Medical Research

Founded in 1901 as The Rockefeller Institute for Medical Research by John D. Rockefeller, it was America's first biomedical institute, like France's Pasteur Institute, founded in 1888, and Germany's Robert Koch Institute, founded in 1891. In 1910, The Rockefeller Hospital opened on its campus as America's first facility for clinical research. The Rockefeller was a special environment for the training of the best and brightest, and the Kunkel lab was a major draw and in the same building as the 30-bed inpatient unit where persons with diseases of interest were admitted and studied. The physician-scientists did not select the patients they studied. "They were referred because they were difficult patients or were unable to pay for

medical care... The conclusions from them were never claimed to apply to SLE patients in general.” (Shu Man FU, personal communication, 2021).

When Holman arrived, six of the eventual twenty-four scientists associated with the university had already won the Nobel Prize. Many academic institutions of that era had the feel of men’s clubs and a pace and environment that encouraged deep thinking. Unlike the modern academic health center where doctors’ dining rooms have closed, being viewed as elitist, unnecessary, or too expensive, and meals are on the run, Rockefeller, Yale, Peter Bent Brigham, Massachusetts General, Hopkins, all had dining rooms for the largely male medical staff. The Rockefeller dining room was located in Founder’s Hall and accessed through the library and passed a table with the latest journals and publications displayed. Lunch was subsidized by the University and served on linen. One was shown where to sit, thus people sat and conversed with people they did not know. Investigators from different laboratories interacted. A curbside on a difficult case or a discussion on art, literature, music, sports, or world affairs were always in the air.

Discussions of published science were an important venue for learning how to think and critical analysis, and also how to communicate important ideas to others.

The Institute had monthly journal club dinners with linens and gowned servers. Present were senior faculty and young staff. The format was for the senior chairperson to call upon a young staff member to present a paper. The young staff did not know who would be called upon so each had to be prepared for each dinner with a paper. Prior to participating in journal club, we were advised by our mentors and experienced staff to pick a subject/paper on which no one in the audience would be expert. This would avoid criticism for our choice or understanding, and harm to our careers.

As I was contemplating my paper choice, a new article appeared in Science showing that once an animal developed an antibody to an antigen, that animal could develop an antibody to the first antibody and its antigen. This was new to me and quite interesting, so I chose it. Subsequently, when I finished my presentation, a senior faculty bacteriologist, Walther Goebel, became agitated. My paper had nothing new, he said, it wasn’t interesting and furthermore I had not mentioned some related work he had done. I saw my boss, Henry Kunkel, sinking in his chair. Then Goebel, to deliver the coup de grâce, turned to Rollin Hotchkiss, a senior DNA chemist who had worked with Goebel, and said, “Isn’t that right, Rollin?”

Hotchkiss was a shy man. He seemed uncomfortable, staring at the floor. Then, slowly he straightened up, saying, “No Walther, you’ve got it all wrong.” My heart jumped. I saw Kunkel sitting up straight. There followed some perfunctory discussion, and the dinner ended. Afterward, some colleagues said I was a fool. Kunkel said nothing. But subsequent journal

clubs were no longer as they had been. Young staff presented interesting material for debate and senior staff seemed comfortable with the change. (Holman, personal communication, 2018)

Throughout his career, Kunkel dealt with the consequences of a familial or inherited form of high cholesterol: coronary artery disease with angina and myocardial infarctions (or heart attacks), and peripheral vascular disease. One myocardial infarct took him from the lab for three months. He died from complications from an attempted removal of a clot which had propagated in a shunt for peripheral vascular disease at the Mayo Clinic. Over his career, Kunkel trained over 100 scientists.¹

Discovering the Auto-Immune Basis of Systemic Lupus Erythematosus

In the early 1900s, Paul Ehrlich was studying isoantibodies to red blood cells and concluded that autoantibodies, or antibodies directed against the host cells or their constituents, did not occur. He believed that autoimmunity, if it did exist, could be fatal and coined the term ‘horror autotoxicus,’ the danger to an organism by the formation of antibodies to itself. This view persisted for decades despite the emerging evidence of autoreactivity in diseases such as sympathetic ophthalmia and thrombocytopenic purpura. The explicit recognition of autoimmunity did not occur until a new generation trained in genetics, biology, and in various medical subspecialties, joined the mainstream of immunology.

In 1948, Malcolm M. Hargraves, Robert Morton, and Helen Richmond described the LE cell phenomena in the bone marrow of certain patients at the Mayo Clinic (Hargraves, Richmond, and Morton, 1948; Hargraves, 1949). Over more than two years, they had observed white blood cells, a neutrophil or macrophage, in what appeared to be the process of engulfing nuclear material from the breakdown of other cells. This phenomenon was seen in persons with systemic lupus erythematosus (SLE) and other rheumatic disorders, and only after their blood had been at room temperature. The cell became a diagnostic criterion for lupus for a time, but what caused the phenomenon and its significance was a mystery.

¹ These included Holman, Shu Man Fu, Bob Winchester, Pete Ahrens, Alexander Bearn, Edward Franklin, Mart Mannik, Ralph William, Bill Young, Gerald Edelman, Hans Muller-Eberhard, Hugh Fudenburg, Howard Grey, Jacob Natvig, Eng Tan, Bob Lahita, Peter Schur, Peggy Crow, Vincent Agnello, Keith Elkon, Westley Reeves, Max Cooper, Nick Chiorazzi, Peter Lachmann, John Zabriskie, J. Donald Capra, Ron Carr among others.

Within a few years, John Haserick, Lena Lewis, and Donald Bortz showed that in lupus, the gamma globulin fraction of blood stimulated production of LE cells. When gamma globulin levels fell during clinical remissions, the LE cells also disappeared from the blood (Haserick, Lewis, and Bortz, 1950). In Switzerland, Miescher and Fauconnet (1954) mixed serum from lupus patients with crushed cell nuclei and the nuclear material used up the specific gamma globulin and prevented the formation of the LE cell.

In 1957, alone in the laboratory in the middle of the night, Holman had his eureka moment (Holman, 2011). He isolated the serum factor that adhered to cell nuclei and showed that the separated antibody was absorbed by another preparation of nucleoprotein. Nucleoprotein is the name for the main constituents of chromosomes which are DNA and histone. Exposing phagocytes to the antibody-coated nucleoprotein, he also showed that the cells quickly engulfed the material producing the LE cell thus completing the explanation and proving that the LE cell phenomena resulted from a reaction between the patient's own immune globulin and the DNA of the patient's chromosomes (Holman, 1957).

Holman wanted to present his results at the American Society for Clinical Investigation, the premier meeting for clinical science. Kunkel, not involved in the details of the work, concluded that an abstract was premature and not ready for submission. Holman felt it was and enlisted Jules Hirsch, a Rockefeller colleague who had just been inducted into the Society, to sponsor the abstract. It was selected for the Plenary Session which traditionally showcases the most important work of the meeting. Holman's presentation was warmly received; Kunkel seemed surprised, but pleased. Still unsure of its importance, he urged Holman to present his findings to Elvin Kabat at the Neurological Institute at Columbia-Presbyterian Medical Center, to see whether Holman had indeed made a true discovery. Holman had to convince Kabat, a protein chemist and thought leader, that the protein he had identified was, indeed, an antibody gamma globulin engaged in an immune reaction with the DNA part of the DNA-histone complex, and was responsible for the LE cell phenomena. Holman succeeded in convincing Kabat and published the results with Kunkel in *Science* (Holman and Kunkel, 1957). The 1200-word article was proof of autoimmunity in SLE.

This work and that of others during this period has been somewhat lost in most accounts of autoimmunity or of the search for the pathogenesis of SLE (Hahn, 1998; Isenberg, 2007; Kumar, Bhatia, and Minz, 2009; Tsokos, 2011; Plotz, 2014; Mahler et al., 2019; Silverstein, 2001; 2009), except for one (Anderson and Mackay, 2014). In science, discoveries may be made simultaneously and independently by more than one person or group;

science historians call this “multiples” (Gladwell, 2008). Others build on previous work or work by individuals who may not have realized their result’s significance. A scientist may not recognize a discovery as such, especially when an experiment doesn’t go as planned or an observation or result is unexpected. Forgetting and selective memory are not uncommon in science as it is in daily life; it is seen when a scientist leaves a field as was the case with Holman. In Thomas Kuhn’s *The Structure of Scientific Revolutions* (1962), Kuhn argued that science does not necessarily progress in a continuous, linear fashion, but rather it advances after one generation of scientists is replaced by younger minds, not constrained by the existing scientific paradigms. In any case, breakthroughs may only be realized as such in hindsight. Discovery can be highly rewarding and rewarded. In that culture, establishing a paper trail is paramount in academia and in patent disputes. Unfortunately, the controversy is often played out in the court of public opinion. The trans-Atlantic storm over the discovery of HIV and the serologic test for the infection that went all the way to the Nobel Award ceremony is a recent example (Cohen, 2016). Holman, repelled by the cult of the celebrity in academia avoided discussions of who was “first.”

In Holman’s landmark paper (Holman and Kunkel, 1957), an autoantibody to DNA in systemic lupus erythematosus is demonstrated. It describes the antecedent work of Miescher and Fauconnet (1954) at the University of Lausanne in Switzerland. In the process of reporting their findings, Holman and Kunkel (1957) had knowledge of George F. Friou’s “similar observation” from Yale (Friou et al., 1957; Friou, 1958; Friou et al., 1958).

Ultimately, Friou’s fluorescent antibody detection, based on the Coombs technique, became a common test for the diagnosis of lupus: the antinuclear antibody test. What was important from all this work and others was that it engaged a generation of scientists pursuing immunologic mechanisms in new concept of pathogenesis and diagnosis.

Holman changed his thinking about the role of autoimmunity in SLE. He had concerns about where his work had taken the field. Antinuclear antibodies could not explain SLE’s varied organ manifestations; the pathway to specific treatment remained uncertain. He had seen many individuals misdiagnosed and mismanaged because they had a “positive” ANA. He came to the view of auto-immunity as a “normal” response and that autoantibodies can often be found in normal people. Those with SLE may just have an exaggerated response (Holman, 1959).

Scientists' Committee for Radiation Information

To educate the public in understanding the real threat of nuclear radiation and what fallout meant to human beings—a danger never encountered or thought possible before—Holman and other scientists at Rockefeller formed the Scientists' Committee for Radiation Information (SCRI). They educated anyone who would listen about the need for an atomic test ban at churches, schools, community clubs, even apartment buildings. On some weeks, four or five talks on weeknight evenings would be given.

Once, Holman spoke to a group of Protestant ministers in Newark, New Jersey and when he got back to the laboratory that afternoon, he got a call from Thomas Aloysius Boland, the Archbishop of the Newark Catholic Church. The Archbishop and two Catholic priests wanted to hear more. "I'd like you to come over and have dinner with me," Boland continued, "and speak to our Parish." Holman was astonished—SCRI members had never before been invited to speak to a Catholic group. Powerful members of the Church strongly supported Senator McCarthy. During the dinner, Holman asked the Archbishop why he invited him to talk to his Parish. Boland replied, "Well, I have a theory. My theory is that the Lord is going to give us a certain amount of time to put our affairs in order. And if we don't do it, he's going to allow us to blow ourselves up with atomic weapons."

Boland then took Holman over to the Newark Catholic Church where he spoke to a large throng where the center section was filled with parishioners, the right side with children from the school, and the left with priests and nuns. Afterward, there were many questions, some of which were critical: Wasn't it true that the Soviet Union was trying to conquer the world, and weren't atomic weapons our most important defense? How could we possibly cooperate with the Soviet Union when they would only lie and retract on their commitments?

During refreshments afterward, the Archbishop handed Holman an envelope, "This is for your work, so that you continue it." Inside was \$100! SCRI members never charged anything for their talks, and never received anything other than cookies and soda. Holman was moved. Here was a Catholic Church leader standing up for his beliefs in the face of the clear opposition of his parishioners and most members of the Archdiocese.

After Holman left Rockefeller, his former SCRI colleagues merged with the Committee for Nuclear Information in Saint Louis to form the Scientists' Institute for Public Information (later the Physicians for Social Responsibility). That group designed the Baby Tooth Survey led by the physicians Louise and Eric Reiss, to determine the effects of nuclear fallout by examining the amount of strontium-90, a radioactive material not found

in nature but absorbed from contaminated food and milk into the deciduous teeth of children. They collected baby teeth from 50,000 children around St. Louis, Missouri from more than 400 above-ground atomic explosion locations in Nevada and other states. They found that strontium-90 had risen steadily in children born in the 1950s, and those born after 1963 had levels more than 50 times higher than in children born before the start of large-scale atomic testing (Reiss, 1961).

These findings drew considerable publicity. President John F. Kennedy called Reiss personally to discuss the findings. The survey helped convince Congress to sign the 1963 Partial Nuclear Test Ban Treaty with the United Kingdom and Soviet Union to end the nuclear weapons testing that placed the greatest amounts of nuclear fallout into the atmosphere. On the day the treaty went into force, the Nobel Peace Prize was awarded to Linus Pauling “who... campaigned ceaselessly, not only against nuclear weapons tests, not only against the spread of these armaments, not only against their very use, but against all warfare as a means of solving international conflicts.”

CHAPTER 5

BUILDING STANFORD MEDICAL CENTER AND THE STRUGGLE FOR A JUST SOCIETY (1960–1969)

Re: The Stanford Character: *“a strong streak of individuality,” “relaxed and unpretentious style,” “tradition ... that simultaneously admits the strength and excellence of the scholastic, and the freshness and vigor of the practical.”*

—Donald Kennedy, 1980

Give people all the freedom they will take and all the support they need.

—Halsted Holman

Holman’s journey back to California to a new enterprise occurred during the anxiety, turmoil, and social upheavals of the period. The ’60s, from 1960 to 1969, was a period of similar cultural and political trends all around the world: depending on one’s view—either a revolution in social norms of music, speech, dress, sexuality; or recreational drugs, flamboyance and decline of the traditional order. The United States, United Kingdom, France, Italy, and West Germany turned to the political left and 34 African countries gained independence from their European rulers in the 1960s.

Turmoil marked the US: the assassinations of Malcolm X, John F. Kennedy, Martin Luther King Jr., and Robert Kennedy; the police assaults on innocent protesters at the 1968 Democratic National Convention; the Compton’s Cafeteria Riot in San Francisco; and the Stonewall Riots in New York that began the Gay Rights movement.

Worldwide, political upheavals and bloodshed pervaded: the Vietnam War, the Bay of Pigs Invasion, the Portuguese Colonial War, the Indo-Pakistani War, the Arab–Israeli Six Days War, and internal strife and fighting in Nigeria, Laos, Sudan, the People’s Republic of China, Northern Ireland, France, and the Tlatelolco massacre in Mexico. Coup d’état of the decade included ones in Greece, in Iraq, and in Libya.

The Civil Rights movement mobilized thousands of US college students. Campuses dominated the nightly news in Ann Arbor, Berkeley, and Cambridge. Palo Alto was also a hotbed of activity. Many of the people involved became leaders in the opposition to the Vietnam War. American military abuses, such as the My Lai Massacre, swelled the opposition.

John F. Kennedy had spoken eloquently for social reforms, but it took Lyndon B. Johnson, who had experienced the humiliation of his family losing its wealth and the shame of being poor, to carry them out. With arm-twisting and hard political maneuvering, Johnson pushed the passage of laws to ensure civil rights for African-Americans and healthcare for the elderly (Medicare) and the poor (Medicaid)—programs of the Great Society which set the stage for the rapid growth of healthcare and academic health centers.

With this backdrop and the rapid growth of biological knowledge following World War II, the country invested heavily in science and medicine, rapidly expanded the National Institutes of Health (NIH) and research at academic medical centers. Between 1965 and 1990, the number of full-time medical faculty increased more than fourfold. NIH funding increased eleven-fold, and revenues of academic medical centers from providing treatment from Medicare, Medicaid, and increased health insurance industry nearly two hundred-fold.

For Stanford, the sea changes in funding came at a propitious moment in their aspiration to become a great university. What had begun in 1908 as the Cooper Medical College in San Francisco became the Stanford University School of Medicine in Palo Alto in 1959. At his retirement dinner in 1943, Stanford Chancellor Ray Lyman Wilbur saw the future:

Stanford is a great university standing on the edge of the Pacific. Look at the chance we would have if someone gave us \$5 million to build up an Institute for studies of this area, the people, the lands, the products, all centered in Stanford.

The Medical School should be moved to the campus where it would enjoy all of the campus facilities. A joint County Hospital could be arranged for. There will be a great Army hospital on the Timothy Hopkins property, and there is already the Army hospital for mental cases. There should be retained in San Francisco a school of graduate medical work. (Wilbur qtd. in LaDou)

A 1951–52 study found that Stanford's most pressing need was for major replacement and renovation of its San Francisco facilities at a cost of \$30 million. It was decided, instead, to move to Palo Alto. Its decision strengthened the University of California's medical faculty's resistance to move to Berkeley and to become an autonomous campus in the city as

Stanford moved down the peninsula to the campus of the rest of the university.

Between 1958 and 1960, Stanford phased out its San Francisco operations and the house staff training formerly assigned to both schools was assumed by the University of California. The move to Palo Alto depleted the number of the full-time faculty but opened opportunities and a fresh start for new faculty.

Recruitment to Stanford

Holman's work at Rockefeller attracted attention. He was offered a position at New York University with Lewis Thomas and Rockefeller discussed a promotion. Holman got a call from Stanford regarding a position. Hiring medical staff from a national pool of candidates was not commonly practiced, formalized, nor organized; many positions including subspecialty fellowships and residencies were filled by word of mouth or personal connections between leaders in various institutions.

The events leading to his recruitment were not clear, not even to Holman. Sidney Raffel, Chairperson of the Department of Medical Microbiology from 1953 to 1976, had made immunology a force in the medical school and may have played a major role in identifying and recruiting Holman. It may have also been Norman Kretchmer, a fellow intern at Montefiore who recommended him. Holman speculated that his hire might have been in part atonement for how the university had treated Paul A. Baran, a bombastic Marxist economist and Stanford Professor. An unsolicited letter (unknown to Holman then) from Henry Kunkel to Joshua Lederberg, who just the year before had won the Nobel Prize in Medicine and Physiology, recommended the committee consider Holman for a larger role (see Figure 5-1 below).

Holman made two visits to California to interview for the job; once giving medical grand rounds. It did not take long for Stanford to offer him a position or for him to accept.

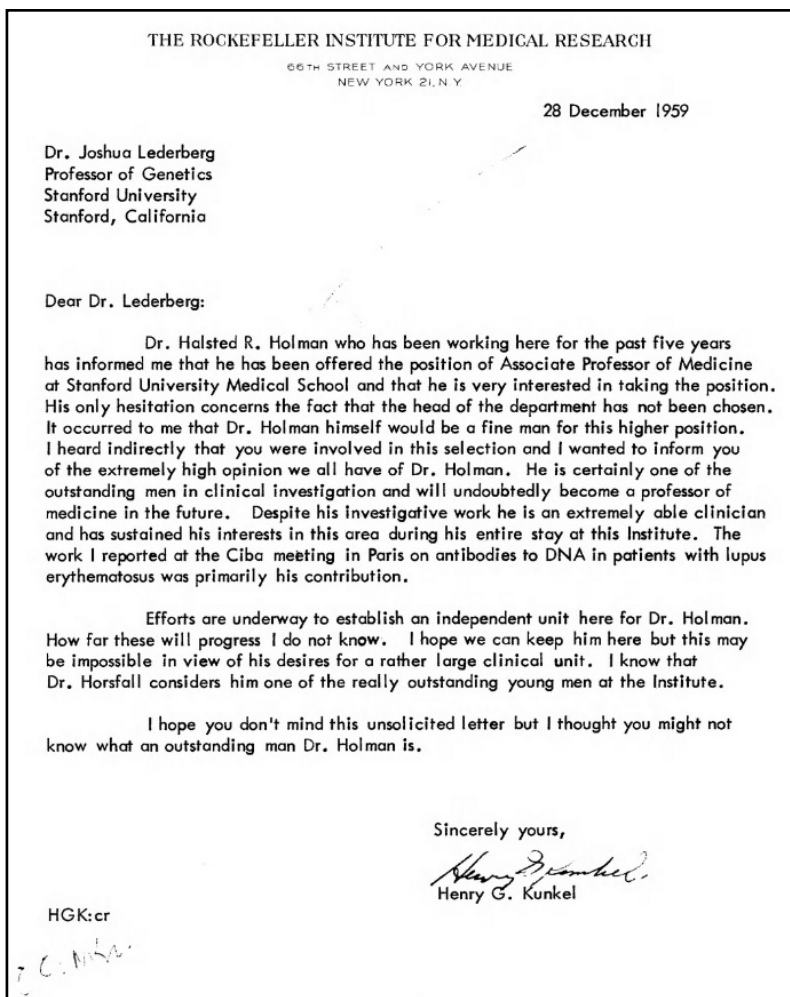


Fig. 5-1. Henry Kunkel's recommendation letter of Holman to Joshua Lederberg (Kunkel, 1959)

Holman was offered the Belle N. and Berthold Guggenheim Professorship of Medicine, which had been endowed to help bring Stanford into the biomedical era by the Guggenheims, longtime supporters of Stanford. The remainder of the bequest was for building medical and surgical facilities at the medical center. Holman was appointed Chairperson of the Department of Medicine, a medical school's largest and most influential department. The opportunity to influence education and to build an academic center with only eight faculty, in a new physical plant with the expressed mandate of bringing contemporary biomedicine into clinical medicine without barriers of space nor resources, was irresistible. In 1960, at age 35, he became the youngest Department of Medicine Chairperson that Stanford (and possibly any medical school) ever had.

Just before his arrival, the basic science and medical faculty were housed together on the main Stanford campus in Palo Alto. Joshua Lederberg had only just received the Nobel Prize for discovering “sex in bacteria” in 1958; Arthur Kornberg was yet to receive the prize for “synthesizing DNA in a test tube.”

It would be another 2 or 3 years until the DNA → RNA → protein mantra would be broadly established as the central dogma of genetics, and the *E. coli* lacZ operon would be broadly recognized as modeling the genetic control of enzyme (and other) protein synthesis. However, these ideas were already appreciated at the newly reorganized medical school, their importance having been anticipated by faculty leaders Henry Kaplan, Avram Goldstein and others planning the Medical School shift from “the City” to “the Farm.” In a prophetic move that laid the groundwork for the school as we know it, they appointed Kornberg to head Biochemistry and Lederberg to head Genetics, thus establishing an interactive basic science axis that would make enormous strides in biochemical and molecular genetics and would lay the groundwork for molecular medicine as we know it today.

Immunology, which was part of the Medical School basic science “half”, was already established on the Farm when the move occurred... However, they were also excited about the new vision driving the school and had joined Kaplan and Goldstein in developing a school-wide recruiting approach where research interests and collaborations crossed departmental lines. Ultimately, this effort would turn out to bring innovative genetic thinking... and would play a major role in shaping immunology as we know it today. (Jones and Herzenberg, 2014)

From Holman's time to 2014, there have been eight Chairpersons of Medicine at Stanford. Joyless and grim tasks now often occupy Chiefs of Medicine throughout the country. In the aggregate, they are asked to downsize the enterprise, create new revenue streams in the face of cuts in

patient care reimbursement (begun in the '70s), and in funding graduate medical education which started during Ronald Reagan's presidency and continued through Obama's (Iglehart, 2015).

Calling All Upstarts

Holman set out to recruit faculty who shared his enthusiasm for biomedicine. These cutting-edge thinkers, he says, necessarily had to be young to do and excel at both clinical medicine and laboratory science. "There were very few middle-aged or elderly physicians who knew bioscience then," he says. In addition, he started a model for the cross-department research collaboration that became a hallmark of the new immunology and a magnet for other like-minded faculty—ultimately resulting in the recruitment of such future luminaries as Hugh McDavitt, Sam Strober, Ron Levy, Garry Fathman, and the involvement of the clinical faculty in basic science research.

The FBI was still pestering Holman, however, and shortly after his arrival, agents visited Stanford and tried to block his appointment, calling him a dangerous subversive. But Holman had forewarned Stanford officials and its President, Wallace Sterling, about his background and his refusal to sign the loyalty oath. Sterling asked if he'd be willing to answer questions from the Advisory Committee, a group of senior faculty who advised the President, and Holman agreed. At the meeting, the Committee had few questions and seemed to consider the whole proceedings a perfunctory exercise. Nothing happened and his appointment was secured.

When Holman arrived in Palo Alto in 1959, there was a pulmonary division, the leaders of cardiology and infectious disease were nearing retirement; neurology, oncology, gastroenterology, endocrinology, and nephrology, dermatology and rheumatology had to be started. NIH funding helped make it happen. Generous NIH funding and the explosion of the biomedical sciences produced an abundance of 20 to 30-year-old candidates with laboratory and clinical expertise. At age 35, Holman was the Chairperson of a new faculty all barely younger than him. The new faculty were mostly trained in major research institutions in the East, the NIH, and newly minted. Over the next decade, Holman added or reorganized ten or more subspecialty Divisions within medicine and recruited 20 to 30 new faculty, many of whom were spearheading cutting-edge science. Stanford became one of the premier academic medical centers.

New faculty were expected to lead a laboratory research program and care for patients as well. In the late '70s, however, the then Chief of Medicine, Dan Federman, a renowned clinician and educator at Harvard

Medical School previously, observed at a Stanford faculty meeting where most attendees were lab-first, patient care and teaching occasionally, that he wished they could appreciate the satisfaction of those who cared for patients and taught.

Building the First Divisions in the Department of Medicine

The first new Division that Holman created at Stanford was Immunology and Rheumatology. He was its only faculty until 1966, when Hugh McDevitt was recruited. From 1970 onwards, James “Jim” Fries, Sam Strober, Gary Fathman, Ted Pincus, PJ Utz, and Mark Genovese joined. Holman continued his research on lupus and related diseases throughout the 1960s. A fellow, Gordon Sharp, working with Holman characterized what appeared to be a new SLE subtype associated with a specific antibody, mixed connective tissue disease or MCTD (G. Sharp et al., 1972). With another fellow, James Raitt, alkylating agents in lupus and in what is now known as granulomatosis with polyangiitis were first used. Holman insisted Raitt publish the findings alone, so he could get the credit (Raitt, 1971). However, Anthony Fauci, senior and better known at the NIH, became associated with the treatment discovery in the disease.

In 1961, Holman recruited 30-year-old Saul Rosenberg to the division of oncology, which he eventually led. Rosenberg was not known widely beyond radiation oncology and lymphoma research. “To his credit, despite an unusual beginning, and no matter whether you agreed or disagreed with him, Holman created a very strong department of medicine by recognizing young people with great potential,” says Rosenberg. “And over the years, they have proven to be the strength of the school of medicine.”

The youth of the new faculty meant there was little age difference between its leadership and the trainees, a factor that Holman felt led to a rich social network of peers: “We not only did laboratory work together and saw patients together, but we went out together, played sports together” and “the rigid, hierarchical life that was classical for academia just dissolved here, and we liked it that way.”

Infectious disease researcher, Thomas Merigan, came to Stanford in 1963 at age 29 after undergraduate work at the University of California, Berkeley, a medical degree from UC San Francisco, internship and residency on the Harvard Medical Service at Boston City Hospital, and at the NIH studying protein chemistry and bacteriophage genetics. He came to Stanford because he wanted the mix of basic research with clinical duties that Holman sought. “There was excitement about the growth of science in

medicine then. We were all growing together and all wanted the best things for the group,” says Merigan. “Holman had the ability to convey enthusiasm and optimism. Through the people he recruited, he created camaraderie within the department that made people not want to leave. There was very low turnover in the first ten years of the department.”

Sam Strober joined medicine and rheumatology in 1971 and became a lifelong tennis partner of Holman. Strober felt that Holman often brought in fresh perspectives and societal issues that engaged the entire group in an ongoing discussion.

Returning to Yale

In 1966, Kingman Brewster, President of Yale, invited Holman to give the dedication speech for the new Laboratory of Clinical Investigation (Holman, 1966). As a Yale undergraduate, Brewster had turned down membership to Skull and Bones, the secret society, and later became a liberal republican running an institution with conservative alumni. He had been an ardent World War II isolationist before Pearl Harbor, at which point he volunteered immediately to be a Navy pilot.

Holman’s friends on the Yale faculty told him that Yale was embarrassed by the way the Medical School had treated him, and that the invitation was a gesture of contrition. His speech, with gratitude and appreciation for his education at Yale, did not refer to his expulsion from his internship 14 years earlier. Holman credited his former chief, Dr. John Peters, and Dr. Fuller Albright from Harvard for introducing modern rigorous clinical research. Holman then laid out the opportunity, challenge, and need for venerable educational institutions to be a force for lifelong learning of the clinicians in the community, to use their clinical experience grounded in reality as grist for understanding prognosis, translation of basic research and to improve the quality and outcomes of health care.

In the address, one can also find the antecedents of concepts such as the university-without-walls, continuous quality-improvement, patient learning systems, and studying one’s own patients as the Royal College of General Practitioners in England from the practices of John Fry, John Howie and William Pickles; the North American Primary Care Research Group; and Paul Dudley White in Boston would perform.

Political Tumult at Stanford

By 1965, student protests against the Vietnam War had disrupted many universities. Holman adamantly opposed the war in Vietnam, believing that it was doing great harm to both sides. His children, all raised and supported on a “long leash,” were social activists and leaders. This led them occasionally into trouble with the authorities. Michael as a community organizer; Andrea as an activist in prisoners’ rights and a scholar in Latin American feminism, the Mexican poet and writer, Rosario Castellanos (Reyes, 2003), and Alison as a nurse investigator and health psychologist studying the effects of trauma on mental and physical health following her mother’s interests. The entire family marched in anti-war rallies. The more that he and other faculty at Stanford learned about their own university’s involvement with the military effort, the greater their determination intensified to help the students. A Faculty Political Action Group recommended reforms for Stanford, led teach-ins and marches at Stanford, and sponsored well-attended public talks about military research and other issues (Glossbrenner, 1971).

Stanford’s role in the war effort soon embroiled the campus. Students occupied and ransacked the Applied Electronics Laboratory and Encina Hall that housed its main administrative facilities; set fire to the Navy ROTC building and the Center for Advanced Study in the Behavioral Sciences and President Wallace Sterling’s office; threatened arson of other buildings; smashed windows at the Hoover Institution; attempted a night attack on Provost Richard Lyman’s home; and effectively closed down the campus in the wake of nation-wide anti-war demonstrations in the spring of 1970.

In April 1968, Black Student Union Members disrupted an address that Lyman was delivering in Memorial Auditorium, memorializing the recently assassinated Dr. Martin Luther King Jr. The students demanded that Stanford admit more minority students and hire more minority faculty. Lyman and President Wallace Sterling acceded. “It is the matter, not the manner,” of the protests that had to be addressed, they declared.

The Old Union Sit-In and the Academic Council Vote to Support the Students (May 1968)

One of Holman’s political accomplishments during this period was preventing the Stanford administration from expelling seven students who had occupied Stanford’s Student Union to protest the Central Intelligence Agency recruiting on campus. On May 6, 1968, over 300 students broke into the Old Student Union, an administrative building, demanding amnesty

for the seven students and a larger voice for students in University discipline and rule-making. At a meeting that evening, the students announced their willingness to stop the sit-in, but getting no response, decided to resume the sit-in. By the third day, some 600 students were still occupying the Old Union. With negotiations at an impasse, Lyman and President Wallace Sterling called a meeting of the Academic Council which included the entire University faculty hoping to get their endorsement for expelling the students.

When the meeting was announced, Holman gathered the Department of Medicine to discuss how they should respond to the proposed expulsion. Most of the faculty were against the war and many considered it the students' right (if not moral duty) to protest Stanford's involvement with the war effort. It took them almost five hours to hammer out a resolution, word by word, stating their opposition to the expulsion and the reasons, and proposing new procedures that would give students a larger voice in University governance.

The Academic Council meeting started around 4 p.m. in Dinkelspiel Auditorium with over 500 faculty attending. Lyman presented the case for expelling the students, and when Sterling opened the floor for discussion, Holman presented the Department of Medicine's resolution opposing expulsion. Then Holman moved to substitute his resolution for Lyman's, and the motion carried by a voice vote. Stanford Vice Provost and Law School professor, Herbert Packer, later called this "the crucial vote of the afternoon," noting that Holman's motion had displayed "great parliamentary finesse" (Lyman, 2009). Following heated debate, Sterling called for a vote, and the Department of Medicine's position won by a slim margin: 60 votes out of the 500. Lyman angrily denounced the "Holman resolution," as he called it, as irresponsible and encouraging continued student protests. He then announced that they had to think more about this and told the faculty to go home and have dinner, come back, and they would vote again.

When they reconvened that evening, Lyman launched another impassioned assault on the "Holman resolution," warning that it could lead to potentially destructive demonstrations. There was more tense discussion, then another vote. The Department of Medicine position won, again, by 60 votes! Support for the Department of Medicine's position came mostly from faculty in the School of Humanities and Sciences, the Medical School, and the School of Education, while all the other graduate and professional schools voted against the resolution (Lyman, 2009).

The minute that the vote was confirmed, the first person to run out of Dinkelspiel to inform the students in the Student Union was David Packard (of Hewlett-Packard, later Secretary of Defense under Nixon). He apparently

hadn't liked the way Lyman and the rest of the Administration had handled the situation. Later, Lyman described what happened at Dinkelspiel as "the largest and most acrimonious meeting ever of the Stanford faculty." He went home that night and wrote a letter of resignation. "The faculty was ungovernable," he remembered thinking. But the next morning, he tore up the letter because he didn't want to leave Sterling "the ensuing chaos" of his resignation (Kazak, 1994). The next day, the student-run Stanford Daily reported proudly: "Fifty-six and one-half hours after they walked into the Old Union with only themselves for support, over 650 student demonstrators peacefully departed last night with an unprecedented vote of support for their demands by the Stanford faculty" (Taubman, 1968). The "Holman resolution" that Lyman had so bitterly opposed had saved the day.

The Stanford President, Wallace Sterling, by all account let the issues work themselves out in a dispassionate and fair way, never letting on his own views. Sterling was arguably one of Stanford's greatest Presidents. He, like Holman's grandfather, was a son of a Methodist minister. Born in Linwood, Ontario, he studied at the University of Toronto and the University of Alberta and earned a Ph.D. in history from Stanford in 1938. He was a faculty at the California Institute of Technology for ten years before he left to head the Huntington Library and Art Gallery; shortly afterwards, he was offered the Stanford Presidency.

During his 20 years, Sterling led Stanford from a financially troubled regional university to a financially sound, "Harvard of the West," moved the Medical School from San Francisco to Palo Alto, and established the current Stanford Research Park which spurred the development of Silicon Valley. Stanford grew from 8,300 to 11,300 students, with those receiving financial aid from less than 5% to more than one-third and the tenured faculty increased from 322 to 974.

After the debacle at Dinkelspiel, Sterling made a personal gesture, without a spoken word, that moved Holman—it seemed a gentleman's way of communicating respect and approval between antagonists in public. The senior medical residents had a monthly wine and cheese event at Holman's home at 747 Delores Street where notables of the university and distinguished visitors came to chat with the house staff. Sterling loved the venue and was a regular. As luck would have it, he had been scheduled right after the epoch faculty-student showdown. Sterling showed up at Holman's front door, a full hour before the others were to arrive. Thinking he might have made a mistake, Holman was trying to tactfully let the President know only to find out that Sterling had intentionally come early to play the piano with Holman's children, Mike, Andrea and Alison.

Encina Hall Sit-In (April 1969)

By 1969, opposition to the Vietnam War on campus was widespread and student protests were zeroing in on Stanford's role in the war effort. Students had found extensive evidence of classified military research being done on campus, at the affiliated Stanford Research Institute (SRI), and were determined to get the University to end this research.

On April 9, 1969, several hundred students began a nine-day occupation of Stanford's Aeronautics and Engineering Laboratory (AEL), hoping to halt the war research and call attention to Stanford's intimate involvement with the military. During the AEL occupation, the Faculty Senate voted to phase out classified research, and the AEL sit-in ended peacefully, but the students wanted the trustees to address Stanford's control over research at SRI and felt that their best chance of accomplishing this was by occupying Encina Hall, which housed the University's finance offices.

On May 1, 1969, after midnight, 700 people streamed across campus toward Encina Hall. Some 300 students were inside the hall, having shattered windows and forced their way in and hundreds of others followed the events on the campus radio station. When Lyman was informed that the students were removing administration files, he called the police and also members of the Faculty Senate to witness the situation. The crowd could see students opening files and desks and looking at documents. Holman, a Senate member, was there with other faculty summoned by Provost Lyman. Every hour or so, University officials went into Encina Hall with bullhorns, warning students they would be arrested and suspended from the University unless they vacated the building immediately. Some students exited, but many remained inside.

Shortly before 4:00 a.m., Lyman called the police. SWAT teams, in full riot gear, amassed in front of Encina Hall. Faculty members, including Holman, clustered on both sides of the police. They could see the students preparing to leave. Suddenly, they heard the command, "Move in!", and saw the police advance toward the building. But then an unidentified figure shouted loudly and authoritatively: "Stop! They're coming out!" The police stopped. The students slowly trickled out of the hall; no one was arrested, and violence was averted. In the dark, few knew who had shouted. It was Holman.

The two leaders on opposite sides, Lyman and Holman, had taken prominent academic paths to this confrontation. Lyman was a graduate of Swarthmore College and received his Ph.D. from Harvard. His book, based on his dissertation, *The First Labor Government, 1924*, explored Britain's Labor Party's struggle to be faithful to its core values while trying to govern

effectively in a democracy which foreshadowed the same tensions he would face as Stanford's Provost and President. In his memoir (Lyman, 2009), he wrote, "We have to preserve order because if we do not, someone else who does not understand the delicate fabric of the university will come in and do it." He was absolutely committed to "The right of free speech, and the willingness to listen to unpopular or even dangerous ideas lie at the core of any good university's being."

The year after the Encina Hall incident, the faculty and the students cancelled medical school classes to protest the US invasion of Cambodia and the killing of students at Kent State and Jackson State. In 1971, a demonstration alleging racist personnel policies toward an African-American gardener at the hospital resulted in injuries, arrests, and more than \$100,000 in damages to the hospital administrative offices. Students had occupied the offices and called the local fire department who broke through the boarded-up office after most had disappeared through an escape route. Alison Holman was one of the occupants. Holman recounts that every group in the hospital discussed what should be done including the janitorial staff. One of them asked that they be taught medicine, since patients see the non-professional staff more than the others, and they are the first line for information from anxious patients. Their reasons paraphrased:

—Code blue. You walk out of a room and you call us. What is a code blue? What are we supposed to do?

—I sweep the floor. A patient is going to have gall bladder surgery. They ask us and expect us to explain.

In 1972, Lyman initiated proceedings against tenured Professor H. Bruce Franklin for leading students to occupy the computer center and urging students and faculty to protest the invasion of Laos and Stanford's involvement in the war. Franklin, a graduate of Amherst College and an Air Force intelligence officer, received his doctorate at Stanford and joined the English department. He spent 1966–67 in Paris where he and his wife read Marxist theory, met Vietnamese communist students, and helped organize the Free University of Paris. On his return to Stanford, he became an activist against the Vietnam War, founded the Revolutionary Union, a Maoist organization, and joined the revolutionary Venceremos Organization. Both the Venceremos and Franklin were targeted by the FBI's COINTELPRO which tried to "neutralize" them.

The process to take away Franklin's tenure followed Stanford's rules for due process. A committee was chosen from professors outside Franklin's department. A physics lecture hall was converted into a courtroom and a lawyer represented the University. Stanford Law School had been asked to take the case pro bono, but there were no volunteers. Franklin defended

himself without official legal counsel or support for a counsel. He did receive advice from a recent Harvard law graduate, Joel Klein, a research assistant to Alan Dershowitz who was on sabbatical at Stanford from Harvard Law School. The panel found Franklin guilty of violating the school's Disruption Policy, revoked his tenure, and terminated his appointment. Franklin was blacklisted and could only get short term positions before he was finally hired at Rutgers in 1975.

CHAPTER 6

SCIENTIFIC REDUCTIONISM VERSUS PARTICIPATORY ACTION RESEARCH (1969–1996)

The measurable drives out the important.

—Rene Dubois

We are out of models.

—Halsted Holman

Background

Reductionist thinking is common in many fields of science, including physics, chemistry and biology where the study of smaller units is a strategy of getting insights into basic mechanisms. While this approach is valuable, it is less useful in understanding complex systems, which are inherently irreducible and require a holistic understanding.

In medicine, diagnosis and treatment are two areas where such a tension exists. Until the late 1960s, the process by which science was incorporated in medical decisions was more “clinical judgment” and “the art of medicine” more “eminence” than “evidence-based.” In policy matters affecting populations, experts and various stakeholders might be involved but there was no formal process for resolving conflicts or differences of values and beliefs.

The potential fallibility of scientific knowledge was being described even as the biomedical revolution was beginning. In the 1960s, flaws in medical thinking were beginning to be recognized. At Yale, Alvan Feinstein identified biases that affect clinical thinking in the classic *Clinical Judgement* (Feinstein, 1967; 1994). In Archie Cochrane’s *Effectiveness and Efficiency* (1972), Cochrane described the lack of rigorous scientific evaluation supporting many practices previously assumed to be effective. Over the next decades, clinician scientists would make lasting contributions to the art and methods of quantitative medicine and evaluation of clinical practices: Alvan

Feinstein, Walter Spitzer, David Sackett, Gordon Guyatt, Dan Redelmeier, Lee Goldman, Harold Sox, Robert and Susan Fletcher, David Eddy, John Wennberg, Henrik Wulff, and others.

Clinical Guidelines Proliferate

As the pace of medical capacity and their costs increased, evidence-based criterion became a useful framework for the difficult and politically infused process of sorting priorities for reimbursement and were seen as a means to ensure a floor to cost cutting. Developing evidence-based guidelines were pursued by the American Cancer Society in 1980, the US Preventive Services Task Force for preventive interventions in 1984, and the Blue Cross/Blue Shield Association for deciding which new technologies would be covered in 1985. Specialty societies and voluntary health organizations followed with their own guidelines as much to defend their turf as anything.

By 2000, the Cochrane Collaboration involving 13 countries were producing systematic reviews of the literature and clinical guidelines, the US established Centers to produce evidence reports to support the development of guidelines, and in the UK, the National Institute for Clinical Excellence (NICE) was established to review the effectiveness of various agents of the National Health Service. “Evidence-based medicine”

(Evidence-Based Medicine Working Group, 1992) became a cottage industry and “evidence-based policy” became the basis for education, prisons, policing, etc. Whether practice guidelines actually change physician behavior, reduce costs (especially over the long term), or affect outcomes may be questioned. Membership on guidelines committees have been infiltrated by persons with potential conflicts. Seemingly small changes in diagnostic or treatment guidelines can increase the numbers of individuals treated with a specific drug. One of the most egregious examples was the industry capture of pain management with outright lies regarding the clinical pharmacology of oxycontin. The practice standards for pain assessment and treatment of mild to moderate pain fueled the deaths, suffering, and addiction of the general population. From 1999–2019, nearly 500,000 people died from opioids in three distinct waves; the first wave from 1999 on was related to flawed guidelines. The internet magnifies the effect on usage and demand of treatment (Gordon et al., 2010).

Contentious guidelines for the management of low back pain and for the treatment of persons with Lyme Disease have embroiled researchers in politics, threatened their funding or tied them up in lengthy and expensive legal conflicts. The sheer number of practice guidelines, with sometimes conflicting conclusions, have confounded interpretation and diminished

their credibility and impact by inscrutably and subtly mixing data, “best practices,” and opinion (Neuman et al., 2011; Sanghavi, 2008). At one point, the National Guideline Clearinghouse in existence from 1998 to 2018 had curated over 2,300 guidelines, updated over 1,100 and had withdrawn over 3,200.

Medical Student Education

Watching his parents ministering to patients in their home and given license and freedom at Stanford by Robert Alway and Wallace Sterling, Holman shaped his approach to medical education. It was the same conceptually as his approach with his patients and the general public. It was shaped by his own struggles in a college course, and experiences with SLE patients at the Rockefeller and his readings on educational philosophy.

At UCLA, Holman was lost in a Greek philosophy course until the instructor gave a 3-page summary of what problems the philosophers were addressing. Only after this did he have the understanding to decipher the various ruminations covered in the course. He was also inspired by Paolo Freire and by war hero Evans Carlson.

Freire’s *Pedagogy of the Oppressed* (1970) had just been translated by Myra B. Ramos into English. It drew on his successful experience helping Brazilian adults read and write. Strongly influenced by Karl Marx, Freire felt that traditional teaching treated students as empty vessels to be filled with knowledge, thereby, in effect, oppressing both student and teacher. He argued that education should help people be more fully human and treat learners as co-creators of knowledge. Freire believed that true freedom resulted from informed action when a balance between theory and practice was achieved.

Evans Fordyce Carlson led the “Carlson’s Raiders” of World War II in the Makin Island Raid and the “Long Patrol” behind Japanese lines on Guadalcanal. The son of a Congregationalist minister, he ran away from home and lied about his age to enlist in the army in World War I and fought in France and Germany. A year after discharge, he enlisted in the Marines. In 1937–38, he was a military observer with the Chinese forces in northern China led by Mao Zedong, Zhou Enlai and Deng Xiaoping. There, he learned the tactics used by guerrillas to fight the Japanese.

Carlson took command of the new Second Marine Raider Battalion at the time when the military was a caste-system dividing officers and enlisted non-commissioned personnel. His own experience convinced him of a better way and what he had observed in China was the model: Leaders

served the unit and fighters on the ground planned the next battle, led not served.

In educating medical students, physicians-in-training, and in specialty training, Holman was suspicious of the expert, the cult of celebrity, and theoretical formulations and solutions without practicing and testing them. He strived to stimulate and encourage the full creativity of the learner into solving important problems and wanted it to be egalitarian, collaborative, and inclusive. Shu Man Fu, a distinguished researcher at the University of Virginia, described his Stanford medical student experience from 1965 to 1970:

The student body was unique in that they came from diverse backgrounds. The oldest student was a successful 45-year-old businessman . . . with 11 laundromats from New Jersey who finished college at night with pre-med courses. The first three years were half time. Students were free to pursue [their] interest. I was a research assistant to get a stipend and tuition rebate.

...

We [had] . . . Introduction to Clinical Medicine that ran from the first year to the end of the third year . . . and introduced us to different healthcare systems . . . the trend of health delivery in the States . . . HMOs and the Hospice movement . . . the National Health Service in England, and how Russia dealt with physician shortage. In addition, we learned statistics that formed the basis for evaluating research data. The curriculum prepared us well for integrating basic science with clinical experience. In retrospect the curriculum [was] way ahead of its time. . . .

I joined Hal's lab in 1966 as a medical student. His interest at that time was in the induction of tolerance to the H-2 locus with skin graft as a model. . . . [H]is father was at Johns Hopkins in the 1920s when his resident(s) observed accelerated skin graft rejection when the second graft was [attempted] after the first skin graft was rejected. Emile Holman did not encourage further experimentation along this line. In the Kunkel and Rockefeller tradition, [Hal] did not tell me what to do. In my naïve way I pursued the . . . use [of] Cytoxin. [We had] no success in inducing tolerance at the H-2 Locus. However, I learned that one should ask Big questions.

I recalled a meeting with our class during our second year; the students wanted more didactic teaching. Hal was furious and was angry and stated that he was not going to spoon-feed us. I think the Rockefeller experience influence him. [T]he pervasive view there [was that one needed to find themselves]. This is a dangerous philosophy in that [trainees] in the middle and [on] the bottom will be lost.

Graduate Medical Education

In Kenneth Ludmerer's classic *Let Me Heal* (2014), the graduate medical education between the world wars is described: "house officers learned that medicine is a calling, that altruism is central to being a true medical professional, and that the ideal practitioner placed the welfare of his patients above all else."

By the late 1970s, healthcare costs continued to rise and many academic medical centers, technically non-profit, expanded their campuses, technological capacity, and focused on growth and the bottom line and became more and more like large businesses. In 1980, Dr. Arnold Relman warned the medical community of the dangers emerging from the "medical-industrial complex" (Relman, 1980). It could not have been more prescient.

In 1989, the government began to reimburse hospitals not by the costs of care but by "prospective payment" in which the hospital received a fixed payment for each patient's admission by their diagnosis. If a hospital spent less in providing services, they made more. The predictable followed: in a labor-intensive enterprise, substituting lower paid personnel for the professionally trained; reducing staff to patient ratios. The site of care was changed to least costly ones: developing ambulatory versions of former in-patient services; getting patients in and out of the hospital quickly; off-loading acute patients to other venues. Many hospitals did not survive in the new environment; others reduced number of beds or focused on the procedures or services that were profitable, abandoning others such as rehabilitation, geriatrics, addiction medicine which were not. Sleep disorder centers with lucrative reimbursements were spun off as commercial enterprises. Hospitals merged and purchased practices to increase their "market share" of insured patients and their negotiating power with vendors. Many academic health centers cultivated wealthy self-paying patients from China, South America, and the Middle East complete with translators and other concierge amenities.

The changes were intended to make things more efficient and less costly, but affected the experience of the patient. For patients, insurance coverage is inscrutable, unaffordable; the processes chaotic, disorganized, impersonal, eye contact replaced by data entry; the pace and timing of care at the convenience of the system.

The changes also eroded the educational experience at teaching hospitals. An attending physician in a teaching hospital is a teacher of interns and residents and is legally responsible for their patient care. The role was once an honor, but training program directors have increasing trouble finding faculty willing to do the job or to donate their time.

Efficiencies increased throughput, the number and complexity of patients. Technologic advances increased the tests and treatments possible: a lot more to do, for more patients, in less time. Before World War II, house officers universally described a “wonderful happiness at work,” despite their very long hours. By the 1990s, many house officers felt “burned out” providing care on an assembly line out of control.

In 2003, with adverse publicity over the Libby Zion case and the Institute of Medicine’s *To Err is Human* (2000), the American College of Graduate Medical Education (the accrediting body for house staff training) restricted the work week to 80 hours or less and a “shift” to 24 hours or less. Training programs then attempted to distribute workloads evenly among the house staff by transferring patients from one resident to another. This not only created extra work, and possible errors from the handoffs, but also affected the training experience. It made the evaluation of an “unknown” or new patient, bonding with a patient, appreciating the subtle signs of patients getting better or worse, and using time as a diagnostic and as a treatment strategy more difficult to experience. They lost the lessons from seeing the outcomes of their decisions and the sense of accountability and responsibility and passing on “their patient” during their illnesses.

As Chief of Medicine, Holman did not hesitate to get involved with patient care and would come in any time of the day to consult on patients in the hospital with difficult clinical problems. One of his Chief Medical Residents was Frank Speizer who was to become an eminent epidemiologist. Born in San Francisco, he attended Stanford Medical School at the San Francisco campus and on the Palo Alto campus in 1965–66. Afterward, he decided to spend time on the East Coast. He trained in medicine in Baltimore, Boston City Hospital, and returned to Stanford to complete his residency.

Early in his senior residency, a case was presented at a VA Medical Grand Round where the patient received a lumbar puncture in the evening but had the spinal fluid unexamined and saved in a refrigerator. On the Harvard Medical Service at Boston City Hospital, the admitting house staff was absolutely expected to have done a complete blood count, examined the blood film and a urine sample themselves and, if indicated, any critical tests such as a spinal fluid, on admission before they went to bed. With this background, Speizer proclaimed to a hushed audience that putting spinal fluid in a refrigerator was “malpractice!” The following week, he was called to Holman’s office, his first ever meeting with him, and he feared the worst for his remark. Holman never mentioned it and instead said: “How would you like to be Chief Resident next year?”

The Robert Wood Johnson Clinical Scholars Program (1971–1996)

In the '60s, many students and some educators were beginning to criticize education as being dominated by white, male, western views. Basic education was felt to be two systems: one for people who were going to be employees and the other private education for people who were going to become the leaders. In graduate education, a similar critique was growing that people from lesser socioeconomic backgrounds and different ethnic groups were being excluded. In medical education, in addition, there was a perception that the technical aspects of medicine were crowding out the humanistic care and that health disparities were growing.

The idea for a Clinical Scholars program began in 1969, at the Swampscott, Massachusetts, to address the future of medical education and its relation to patient care needs (Gardner, Krevans, and Mahoney, 2002). The attendees were leaders in medical education, clinical medicine, public health, and economics.

Five unsatisfied attendees happened to share lunch toward the end of the conference. Holman, John Beck from McGill, Julius Krevans from Johns Hopkins, Austin Weisberger from Case Western, and Jim Wyngaarden from Duke were at the table. During a walk, they continued the discussion and returned with the germ of an idea. Holman and his lunch mates thought they could improve the sensitivity of medical care to its patients by changing graduate medical education to produce a new kind of physician, one with a strong grasp of the societal forces that impact health care, the quantitative and qualitative skills to assess these forces and the health care system, and the ability to effect change within the system. The five developed a proposal to the Carnegie Corporation and the Commonwealth Fund in 1969 to launch the Clinical Scholars Program. In 1971, the Scholars program was transferred to the Robert Wood Johnson Foundation (RWJ) as its first major grant initiative.

Robert Wood Johnson II, son of one of the founders of Johnson and Johnson, turned a family business into one of the world's largest healthcare corporations. In World War II, he was Brigadier General in charge of the New York Ordinance District. He resigned this job to be Vice Chairperson of the War Production Board and Chairperson of the Smaller War Plants Corporation.

Johnson was committed to free enterprise but championed and paid a minimum wage to his employees that exceeded the norms of the day. Johnson and Johnson produced many products sold to hospitals and this activity led him to conclude that hospital administrators needed specialized

training. He was involved with founding one of the first schools of hospital administration at Northwestern University. Johnson also had concern for the hospitalized patient lost in the bewildering world of medical care and advocated for improved education for both doctors and nurses.

When his estate was settled, Johnson's bequest was worth about \$1.2 billion making it the second largest foundation in the country and the largest philanthropy in the health care field dispersing \$60 million in grants during its first year. David E. Rogers, Dean of the Johns Hopkins School of Medicine, became its President and Margaret Mahoney and Terrance Keenan, the Program Officers for the Clinical Scholars Program at Commonwealth, were recruited.

A year before in 1971, Stanford Medical School appointed a new Dean, Clayton Rich. Holman offered his resignation pro forma believing that a dean should have the right to appoint department chairs. It gave the University the perfect opportunity to oust him. Had he been dismissed or fired there would certainly have been a strong public outburst of outrage or opposition.

Holman felt that his politics might have played a role, but it wasn't all. "I think the basic motivation was that I was not sufficiently clinically oriented and that we needed to strengthen our clinical work as opposed to our bioscience. A lot of people, I think, felt that way," he says. Tom Merigan and others felt otherwise: "Holman was always a clinician. He got his research materials from his patients and was always involved in their care. He was involved with ensuring clinical excellence, a theme he continues to this day."

Hearing a Different Drummer

By the time his resignation as Chairman of Medicine was accepted, Holman had already been shifting his focus:

When I arrived, I thought, "Wow, we are really going to be able to apply this stuff to clinical medicine. It is going to solve problems," he says. "But in the 10 years from 1960 to 1970, it became increasingly clear to me and many of my colleagues that a direct connection between laboratory science and clinical science looked less and less definitive. We weren't really solving problems. We weren't doing a good job with health care and we couldn't understand why people got sick. We had a chance to bring science in and enhance our understanding and we did. We changed the way we taught and to some extent how we practiced medicine. Our educational goal in the '60s was to make the science relevant to clinical care. In a way, we viewed ourselves as bringing a new set of tools to clinical medicine."

“New cellular immunologists were being trained everywhere by that time. If I were to become a refurbished immunologist able to do cellular work, I wouldn’t be contributing much. There would be younger people who were faster and better than I was,” he says. “Whereas the school had close to zero in the way of health services research, which interested me very much. So that’s what I decided to do.” (Holman, personal communication, 2016)

He made the case publicly in his Presidential address, “Sounds from a Different Drum,” to the American Society for Clinical Research at Atlantic City that year (Holman, 1971) and poured his energies into the new Clinical Scholars Program. Holman directed the Scholars Program at Stanford from 1969 to 1996. When Julius Krevans became Chancellor of UCSF, they created a joint Stanford–UCSF Clinical Scholar program, with Krevans as the UCSF Program Director. Wallace “Wally” Epstein assumed leadership of the UCSF component in 1974. He was a colorful, contrasting figure in style to the patrician Holman. Epstein had been recruited from Columbia by Dr. Ephraim Engleman for his work in rheumatoid factor and systemic lupus erythematosus. Raised in the Bronx, he attended De Witt Clinton High School and City College of New York until he was drafted in 1944. A lover of classical music, he had played trombone at Juilliard School of Music; after his retirement the cello. He also loved the arts and was a master wood craftsman.

In the 70s, Holman was going through a difficult separation from Barbara after 31 years and developing a new relationship. The daughter of a family doctor in New Hampshire, Dr. Diana Dutton had an academic journey in famous institutions that eventually led her to Stanford. It included studying economics at Wellesley College, a year at the London School of Economics in Social Administration, and a Ph.D. in Urban Social Policy combining work in urban studies, political science and civil engineering at the Massachusetts Institute of Technology. She interviewed unsuccessfully with Holman for a position as a sociologist in the Clinical Scholars Program in 1975 but was hired, instead, as the Associate Director of the Clinical Scholars Program. She and Holman worked together on projects bringing patients and their families into the medical process. They were among the first to argue for public participation in formulating public policy (Holman and Dutton, 1978). They married in 1980. Their son, Geoffrey Dutton was born six years later and became the third generation of physicians in the family, graduated from Tulane Medical School, married and opened his family medicine practice in Missoula, Montana.

“Long-Leash” versus “Tight-Leash” Training Philosophies

The Clinical Scholar Program at UCSF/Stanford had a distinct west coast laid-back style in striking contrast to the Scholars program at Yale. Led by Alvan Feinstein, the restive, demanding, provocative physician scientist, the “father of clinical epidemiology,” Yale’s program was a “boot camp” with a weekly epidemiology and biostatistics lecture by Feinstein for a year. The Stanford/UCSF program, in comparison, was a lecture-less, laissez-faire, “let cream rise to the top,” approach.

Feinstein had a Master’s in mathematics from the University of Chicago and had turned down an opportunity to play guitar with the Weavers, the folk music group, to study medicine. His training overlapped Holman’s: Yale and the Rockefeller Institute. At the New York University School of Medicine, he would eventually create the non-laboratory science for clinical medicine, known as Clinical Epidemiology.

Feinstein was Medical Director of Irvington House, where he studied patients with rheumatic fever. He showed that the disease had different forms. One caused joint pain and seldom progressed to heart disease. The other did lead to heart disease but had no symptoms leading to early detection. Diagnosis of the disease at an early stage usually led to a favorable outcome not because the early treatment was so beneficial, but because those patients tended to have a less-virulent disease. He also showed that breast cancers detected early are often slow-growing and relatively benign. Because mammography often detects less severe cancers, he argued, less aggressive treatment should be used, whereas tumors detected through other approaches are often more serious. His *Clinical Judgment* (Feinstein, 1967) was based on his experiences at Irvington House and a primer on how to think, question, and seek answers in clinical medicine. Feinstein’s views on biostatistics formed a series of papers in Clinical Pharmacology and Therapeutics that became another classic, *Clinical Biostatistics* (Feinstein, 1977). Trying to quantify what he called soft clinical data (versus “hard” laboratory tests) became his lifelong mission. He was properly humbled and eloquently expressed the challenge of capturing the nuanced information that master clinicians used in diagnosis, prognostication, and treatment (Feinstein, 1987; 1994).

Feinstein was also a major figure behind the Veterans Administration’s Cooperative Studies Program (CSP) the oldest and largest program for investigator-initiated (as compared to industry-sponsored) clinical trials. The CSP operationalized a Feinstein belief that master clinicians were best at knowing the most important questions to ask, but methodologists were

essential to the design and execution of rigorous and interpretable studies (Feinstein, 1985). Over 600 studies were done during his time; many changed the practice of medicine. For example, in 1946 Drs. John Barnwell and Arthur M. Walker evaluated various drugs in the treatment of tuberculosis and revolutionized its management; the 1970 study by Dr. Edward Freis established the treatment of hypertension in the prevention of stroke and heart disease.

Feinstein was a restive, force of nature, a chain smoker, prodigious in his output of scholarly works in days long before word processing, “cut and paste,” and Google. He was relentless in his meticulous, no-holds barred editing of manuscripts and presentations and kept four secretaries frantically busy. At the annual ASCI meetings in Atlantic City, when he stood up and introduced himself, the audience quietened, and the speaker awaited their fate before his acerbic, penetrating questions and comments. Like Holman, he was also slow to praise and held himself to the same tough-minded standards. At a site visit for the renewal of the Clinical Scholars program, when asked about the program’s training successes, he answered, “We’ve graduated no one. Their careers are not over. Please don’t judge me yet” (John M. Esdaile, personal communication, 2015).

Feinstein received the Gairdner International Award, Canada’s prestigious award, for his “leading role in the establishment of the discipline of clinical epidemiology.” He died of an acute myocardial infarction a day before he was to speak at the University of Toronto on October 25, 2001. He was introduced posthumously by Dr. Claire Bombardier, a former Clinical Scholar at McGill. His speech, “Is a Pound of Prevention Worth an Ounce of Cure?” is said to be a characteristically witty, iconoclastic attack on the shibboleth read by a former student, Dr. John Frank. It was never published.

Stanford/UCSF, in contrast to Yale’s, had no theme nor curriculum, each Scholar’s “program” was individually developed. To be accepted into the program, the applicant had to convince Holman and Epstein that they were pursuing something important; that they were capable of doing it or had a plan for acquiring the tools. Holman and Epstein for their part had to determine whether they had the resources at their campuses and UC Berkeley that the applicant needed. The supervision was permissive at best; the operating principle, freedom to fail. Once the work had a form that could be presented or read, the intense, incisive questions or suggestions began.

Kate Lorig remembers her second paper with Holman going through approximately 300 versions in the days before word processing to get it right (Lorig et al., 1985).

She remembers his persistence in trying to understand surprising or counterintuitive research findings that others might not notice. Lorig and he

had observed that an intervention changed pain and changed behavior but the two were not related. At a Christmas party sometime later, he discussed the finding with Albert B. Bandura, a psychologist. Bandura believed that most human behavior is learned through observation, imitation, and modeling and thought self-efficacy and social learning theory would help them understand their finding; and, indeed, further analysis confirmed it.

Holman encouraged Scholars in “action research” where one implements a positive intervention in the real world (the action) and to evaluate it (the research). He valued projects that sought to improve a situation, even if only incremental, much more than academic studies which stopped at proof of concept and publication.

Mentoring was a word barely mentioned before it became an institutional reflex and a requirement of career development grants. Holman viewed the assignment of mentors a contrivance and mentoring had become more about learning the unwritten rules of promotion, playing the game, reinforcing stereotyped behavior, rather than stimulating creativity and critical thinking. Holman had no mentors and most of the people he trained would be hard put to remember theirs, but probably could easily name role models.

The Stanford/UCSF approach was controversial within the Clinical Scholars Program because most other programs felt that the scholars needed to be educated rigorously in relevant subjects. Holman felt that the emerging challenges in medicine and health care required new ideas and new approaches and working across disciplines. After the first 10 years of the program’s existence, the controversy seemed to be replaced by the role of qualitative versus quantitative techniques in research. Qualitative work had gained begrudging acceptance; Feinstein even invited Holman to write on the subject for the *Journal of Clinical Epidemiology*.

The Scholars program became a crucible of ideas in a time of social unrest and new thinking and writings dominated the discussions of the Scholars. This literature all appeared in a 10+ year span. Kuhn (1962) demonstrated that scientific knowledge is not accrued in a linear manner nor necessarily with knowledge building on previous work. Major shifts in paradigm often occur when one generation of dominant thinkers pass away, instead.

In Ivan Illich’s *Medical Nemesis* (1975), Illich argued that one’s health was too important to be left to the professional; the patient needed to be involved. Health, he wrote, is the capacity to cope with the human reality of death, pain, and sickness. Technology can help, but modern medicine has gone too far into a battle to eradicate death, pain, and sickness. In doing so, it turns people into consumers or objects, destroying their capacity for health

(Illich, 1975). A philosopher, Catholic priest, and critic of contemporary Western culture, education, and medicine, in particular, Illich gave Medical Grand Rounds at Stanford in 1976. In a tour de force, he had no prepared lecture but invited and fielded questions from the audience. He was followed by a small group of Clinical Scholar attendees for more than an hour to continue the Socratic dialogue; they were so engaged that they barely noticed that the lawn where they sat had just been watered.

Cochrane (1972) showed that many medical and surgical practices have had little critical evaluation, undermining the entire process based on hierarchy and experience. In Thomas McKeown's *The Role of Medicine* (1976), McKeown challenged that the finding of the cause and the specific treatment of a disease would lead to health, the biomedical medicine premise. He pointed out that tuberculosis, rheumatic fever, and diphtheria had already become less prevalent by the time the specific microbial agent and specific antibiotic were discovered. Psychosocial and economic factors might be more important. McKeown (1976) also felt that "the major threat to health in the world [was] modern medicine" and what medical students saw in venerable teaching hospitals was more for the benefit of doctors than patients. Medicine had become commodified, bureaucratic, more business than a calling.

Amos Tversky and Daniel Kahneman described the evidence on the heuristics and biases employed when people are faced with making choices in situations of uncertainty (Tversky and Kahneman, 1974). Their work's impact on many areas of science and medical decision making was profound and was recognized by a Nobel Prize to Kahneman in 2002; by then, Tversky had passed away of metastatic melanoma at age 59 at Stanford.

In Victor Fuchs's *Who Shall Live?* (1975), Fuchs applied ideas in economic theory to health and medical care in a way that hadn't been done before and has been credited with kick-starting the field of health economics. The book presented the challenges in allocating health resources efficiently and equitably, and he identified the three major problems with US healthcare: high cost, gaps in access, and inferior measures of population health.

Holman, immersed in mechanistic laboratory experiments was also a student of psychology, sociology, economics, history, political theory, philosophy—anything that would help him understand the many factors influencing health and what could be done. He often found these in the New York Review of Books which he read regularly and introduced important articles to broaden and challenge the Scholars.

Each Scholar felt they had a special relationship with him. They referred to him as "silver-tongue" acknowledging his eloquence, optimism and

principles. Their feelings for him were captured in a gift, a garish, gold-framed New Yorker cartoon by Dana Fradon:

A gold-framed New Yorker cartoon by Dana Fradon. It features a table with two rows: 'REALISTS' and 'IDEALISTS'. The columns are numbered 1 through 9, and a final column labeled 'TOTAL'. The 'REALISTS' row has the following values: 2, 0, 1, 4, 2, 1, 0, 6, 2, and a total of 0. The 'IDEALISTS' row has the following values: 0, 0, 0, 0, 0, 0, 0, 0, 0, and a total of 1. The cartoon is signed 'D. FRADON' in the bottom right corner.

	1	2	3	4	5	6	7	8	9	TOTAL
REALISTS	2	0	1	4	2	1	0	6	2	0
IDEALISTS	0	0	0	0	0	0	0	0	0	1

Fig. 6-1. From *The New Yorker*, June 28, 1976

In 1995, following Holman's retirement, funding for the program was not renewed. The reason for the decision was never clear. Perhaps it was because neither Stanford nor UCSF put any resources into the program; or that the program was going in a new direction to look at the psychological elements of health; or that spawning health services investigators, who were critical of physicians, eroded their support.

RWJ ended the rest of the Clinical Scholars Program in 2017. It had an extraordinary run (Runyan, 2016). Some 20% of former Scholars became leaders in healthcare organizations, hospitals, medical schools, public health, health services research, clinical epidemiology, and health economics; in governmental organizations such as the Institute of Medicine, the Health Resources and Services Administration, the National Institute of Health, Health and Human Services, and Communicable Disease Center and state and city public health departments. Six deans of schools of public health and Surgeon General David Satcher had been Scholars.

Over the years, 65 went through the Stanford/UCSF program. It was a diverse group: Jim Fries was the first Clinical Scholar at Stanford. A dashing, mustached, charismatic figure, climber of the six highest peaks on six continents, marathon runner, plane pilot, equestrian, driving a red convertible, he created the Arthritis, Rheumatism, and Aging Medical Information System, a national computerized arthritis database for tracking outcomes in SLE, RA, and later stroke and HIV. Its functionality foretold the electronic medical record, data mining and "patient learning systems" many years later (Fries and Holman, 1975; Fries, 1976). With others, they expanded clinimetrics to the measurement of function and quality of life years, the importance of function as an essential vital sign just like height, weight, blood pressure, pulse rate and respiratory rate to describe a person's state. These were years before patient-oriented outcomes became a field in itself (Fries et al., 1980).

With Don Vickery, he co-authored *Take Care of Yourself* (Vickery and Fries, 1976) and with Robert Pantell, *Taking Care of Your Child* (Pantell, Fries, and Vickery 1977). *Taking Care of Your Child* briefly made headlines in 1992. After an insurance company announced that it would distribute it to 275,000 federal workers, President George H.W. Bush's administration insisted that a chapter on contraception be removed, lest it offend some parents. Both books are still in print and guide the lay in sorting out symptoms and complaints which can be harbingers of serious or treatable conditions from self-limited or benign problems.

Fries noted that while the average life span of individuals did not change much, depending on their lifestyle, the rates of their acquiring various chronic diseases and disability varied greatly between those who exercised, ate a healthy diet and those who smoked, overate, and exercised infrequently, if at all. Exercise and a healthy diet do not help one live longer but help postpone the onset of debilitating disease until close to the end of one's life, a phenomenon that Dr. Fries called "compression of morbidity." This concept became a classic in aging studies and almost an article of faith to investigators studying modifiable risk factors in disease prevention (Fries, 1980). Fries died at 83 in 2021 at an assisted living home of end-stage dementia.

Doug Rund, one of the nation's founders in the new specialty of Emergency Medicine, international consultants and educators in Emergency Medicine; Howard Waitzkin, a Marxist philosopher and primary care physician; John Wasson, a VA general internist and geriatrician and world authority in the management of prostate cancer, and pioneer in telehealth; Bob Pantell, an academic general pediatrician at UCSF who led work in health policy on children as legal witnesses, self-care in children and the Kapiolani Child Protection Center in Hawaii; June Fisher, a celebrated action occupational health researcher; Bernie Lo, a prominent medical ethicist; Lawrence Horowitz a trusted advisor to Senator Ted Kennedy, arguably the most important health care statesman of twentieth century.

Alan Shapiro, one of the original Big Data researchers who mined the nuance in medical notes; Woody A. Myers Jr. served as State Health Commissioner for Indiana and for New York City and was the Democratic nominee for Governor of Indiana in the 2020 election; and Bob Meenan, who led efforts to measure function and quality of life as outcomes in arthritis. As the longest Dean of a School of Public Health, he presided over its growth and development as a stand-alone school at Boston University.

The Scholars program was a success, but the problems that preoccupied Scholars were being appropriated within many medical and surgical specialties or by people in managerial sciences, quality assurance activities,

implementation sciences, and for-profit management consultants—all done full-time, often by non-clinicians, or by industry.

In contrast, in Massachusetts none of the four medical schools became sites. However, the Clinical Effectiveness Program, conceived by Lee Goldman and Howard Hiatt (Goldman et al., 1990; Hiatt and Goldman, 1994), became the most enduring program for the methodologic training of clinician scientists. It took its first three students in 1986. Its success was due to Goldman's leadership and finding the right teachers, particularly Francis Cook and John Orav, who had a gift for explaining statistical concepts to physicians and helping them design studies. The physician-researcher teachers had practical experience in executing important studies and success in grant making. They thought aloud to help the novice identify the most relevant, clinically important and answerable questions and to find the appropriate, rigorous methods to do so. Clinical Effectiveness had venues that adapted to graduate medical learners and active clinicians in all phases of their career to partake and from anywhere. Many were new: a summer long "boot camp," a 9-month Masters degree, commuter and on-line. Several section chiefs and chairpersons of departments re-invented themselves this way. Over 31 years, the Clinical Effectiveness Program trained more than 3,300+ physicians from 40+ countries specializing in different medical and surgical fields.

Goldman, trained at Yale and Harvard, was an Alvan Feinstein disciple. A warm, humble, consummate clinician, teacher, and scholar Goldman was equally comfortable giving a nuts and bolts talk on evaluating systolic murmurs at the bedside and explaining sophisticated models of population trends in atherosclerotic heart disease. He showed his deft management talent early on. At the Massachusetts General Hospital, he organized his fellow house staff in a study to develop a better way to assess preoperative risk (Goldman et al., 1977). Alongside Eugene Braunwald, Goldman was vice chairman of the department of medicine and learned academic leadership with the best. Braunwald at one point led the departments of medicine at both the Beth Israel and Brigham and Women's Hospitals with more than 900 faculty. Goldman was to take his organizing and management genius to major positions at UCSF and Columbia.

Training Clinician Scientists

The Stanford/UCSF Clinical Scholar Program was an incubator of health services and health policy research, clinical epidemiology and what is now known as patient-centered outcomes research. Many individuals were in rheumatology: Holman, Epstein, Jim Fries, Robert Meenan, Quinn

Whiting-O’Keefe, David Curtis, Matthew Liang, Dennis McShane, Mike Ward, and Stan Shoor.

The 1975 *National Arthritis Act* (Public Law No. 93–640) established a National Commission to study the problem in depth and to develop an arthritis plan, a separate National Institute of Arthritis and Musculoskeletal and Skin Diseases, and a new Arthritis Interagency Coordinating Committee; community demonstration project grants; an arthritis data bank in support for Stanford’s ARAMIS; an information clearinghouse; and comprehensive centers for research, diagnosis, treatment, rehabilitation, and education. The last funded from 1999–2017 provided critical support for a generation of health educators and health services researchers. Stanford’s Center was led by Holman.

Scientific Policy on Recombinant DNA Research

In the ’70s, as with the nuclear arms race, Holman was drawn into a public debate on the safety of the emerging advances in genetic engineering. The controversy became public when scientists at the 1973 Gordon Research Conference on Nucleic Acids published an open letter in *Science* urging the National Academy of Science and the National Institutes of Health (NIH) to examine the risks and benefits of recombinant DNA research. This led the NIH to commission the Recombinant DNA Molecular Program Advisory Committee. Paul Berg, Professor of Biochemistry at Stanford, chaired the committee and in 1974 the committee recommended a voluntary moratorium on all recombinant DNA research until its risks and dangers were more fully investigated and an international conference held. This occurred in 1975 at the Asilomar Conference in California. The conferees decided that the voluntary moratorium would be lifted and guidelines regulating genetic research be established.

Experiments involving toxic materials such as snake and insect venom were banned, and those in which the benefits outweighed the risks were categorized according to the risks. For example, recombinant DNA research with primate and animal viruses was considered more hazardous than with plant viruses. A system of containment with physical and biological components was developed. Physical restrictions ranged from those for standard laboratories to those used in biological warfare research where airlocks and special clothing were required.

The biological concern was *E. Coli*. Some scientists considered the introduction of new plasmids (i.e., circular strands of genetic material) into these bacteria too dangerous and feared that they may produce harmful substances to humans. Because *E. Coli* exist in normal human flora, the

altered organisms might be recognized by the immune system as such. On the other hand, *E. Coli* was the most extensively researched organism; its genome mapped in detail, making it ideal for recombinant DNA experiments. It would take ten to fifteen years to gather such data on any other bacteria. The scientists at Asilomar felt the advantages of using *E. Coli* outweighed the potential risks.

E. Coli in its usual form was to be used for low-risk experiments. More hazardous experiments were to use the K12 strain which has an extremely low survival rate in the natural environment. Some scientists felt it would be possible for normal *E. Coli* to absorb plasmids from the K12 strain if accidentally ingested. The normal *E. Coli* would then reproduce with the potentially dangerous genome of the experimental K12 strain. Though many scientists felt these guidelines too strict, the public felt otherwise. Holman sided with caution.

Cambridge, Massachusetts, was the first city to hold its own hearings. Investigators from Harvard and the Massachusetts Institute of Technology (MIT) were actively involved in recombinant research. The mayor wanted to forbid all dangerous research requiring the stringent containment conditions. The City Council required the NIH guidelines be followed and restrictions of its own and set up a biohazards committee to regulate all recombinant DNA research in Cambridge.

In 1975, Senator Ted Kennedy convened a unique Senate Hearing on research on recombinant DNA, a public debate orchestrated by Dr. Larry Horowitz who was also in residence at Stanford as a RWJ Clinical Scholar. Berg, Cohen, and Holman were discussants (US Senate 1975; 1976; 1977; 1977). Cohen was apprehensive about appearing with the gifted speaker, Holman. Both were respectful of each other and took nothing personal from the debate. Horowitz remembers the senator leaning back and whispering in his ear on two occasions as Holman weighed in before the spotlights: "He should run for office!" "He should just record this on vinyl [records]!"

Berg and Cohen extolled the promise of recombinant research. Holman and Dutton (1978) called for more public involvement in the regulations of genetic research. They also asked the question, "Should scientists who are intensely involved in research be the ones to regulate themselves?" On this last point, Holman was highlighting a relatively new but increasingly common situation. Many scientists had started businesses to translate their findings into useful products. This created the opportunity for potential and actual conflicts of interest. Herbert W. Boyer, for example, co-discovered with Cohen and Berg a way to nudge bacteria into producing foreign proteins. Boyer was a strong supporter of recombinant DNA research but also a founder of Genentech—a genetic engineering company. Companies

which performed recombinant DNA research were not regulated by NIH guidelines. Although they voluntarily follow the restrictions, they do not disclose specific experiments because they were proprietary.

The Bayh-Dole Act of 1980 permitted academic medical centers to patent NIH-funded discoveries which meant that centers could license their discoveries for royalties. The public therefore paid twice for medical innovations: once for the research, and second in buying the products of the work. The next spring of 1981, the Supreme Court decided that recombinant DNA organisms could be patented and made it possible for the science to become proprietary and profitable.

In his own research, Holman was already coming to the realization that his work was limited by newer technologic developments in science. He was also beginning to feel the tug of bigger problems in the delivery of healthcare.

CHAPTER 7

INCREASING HEALTH DISPARITY VERSUS EFFICACY AND EFFICIENCY (1971–1997)

“My God, what have I done?”

—Lt. Colonel Nicholson

The Bridge on the River Kwai

Background

Paul Starr’s Pulitzer Prize-winning book, *The Social Transformation of American Medicine* (1982), describes two historic movements in American medicine: the rise of professional sovereignty and the transformation of medicine into an industry.

Hospitals, which are central institutions in US healthcare, increasingly became for-profit in three streams. The first were voluntary hospitals operated by charitable lay boards and public hospitals operated by cities, counties, and the federal government. The second, beginning in the 1850s, from hospitals that were primarily religious or ethnic institutions or specializing in certain diseases. The third was profit making hospitals.

The birth of Blue Cross in 1929 and Blue Shield paved the way for health insurance in America because it reorganized medical care on a prepaid, comprehensive basis and provided a practical solution for those who could not afford typical private insurance of the time. During the Great Depression, these and prepaid plans ensured steady revenue for providers.

During World War II, the country had to control wages and prices as it ramped up war time production. One consequence was that the caps on wages allowed health insurance to become an employee benefit to entice workers. It also tied health insurance to employment, a factor that ultimately made it difficult for the unemployed and underemployed to get health coverage. The purchase of health insurance went from an individual’s transaction to collective purchases insulating individuals from being responsible for their own bills—a moral hazard situation.

In 1965, the landmark Medicare and Medicaid made non-paying patients into paying ones and began the growth and consolidation of the health insurance industry and made collective purchases in the public sector the rule, as well.

From the early '60s to the '70s, American healthcare costs continued to rise despite every effort to contain them (Fuchs, 2012). Indicators of population health such as infant mortality and life expectancy were among the lowest in the world for the money spent on healthcare per capita. In many marginalized groups, the statistics were even worse and the discrepancies widening. That trend has continued. Since 1960, the US has dropped from 12th to 46th in infant mortality, from 16th to 36th in life expectancy. Some 40 million people in the world's richest country, with the most medically advanced technology, could not afford healthcare.

By the '70s, another trend was also becoming evident: more people who could not afford housing were running out of options for shelter. Most of the almshouses or charitable housing for people who could not afford housing closed, free county hospitals phased out, and state mental hospitals closed. The crisis resulting from these changes created the situation for well-intended, expedited, and naïve legislation whose consequences the country has been trying to rectify ever since. The Community Mental Health Act of 1963 released long-term psychiatric patients from state hospitals into the community and to rooms and to mental health centers in the community for treatment. The centers never materialized fully and left these patients, who were living on the streets, soon thereafter with no support system. Rising real estate prices and neighborhood pressure to move these patients out of their areas made the situation worse.

Richard Nixon took the first deliberate steps to change American healthcare from its longstanding non-profit character into a for-profit model driven by the insurance industry. The Health Maintenance Organization Act of 1973 fueled the rapid growth of Health Maintenance Organizations (HMOs); the first "managed care" and provided grants and loans to plan, start, or expand an HMO and mandated employers with 25 or more workers to offer federally certified HMO options; the last giving HMOs access to the employer-based market for the first time.

By the late 1980s, managed care was nearly ubiquitous and credited with slowing medical costs by reducing unnecessary hospitalizations and shortening stays, forcing discounts, and making the health-care more efficient and competitive. Physician and hospital compensation were also changed to a system where both were reimbursed by formula for diagnostic groups rather than what it cost; the resource-based relative value scale (RBRVS).

All of this led to a consumer backlash and the widespread perception that HMOs were more interested in saving money than providing healthcare, decreased the amount of time doctors spent with patients, made it harder for the sick to see specialists, denied medically necessary care, and had failed to produce significant health care savings. These perceptions persist.

Insurers responded to public and political pressure by offering other “packages” of mind-boggling complexity and overhead to sort through. At one point, 90% of insured Americans were enrolled in more than 5000 plans with some form of managed care. Some states, in addition, also had contracts for the elderly and individuals with disabilities that provide comprehensive care under a budget.

New Dean Accepts Holman’s Pro Forma Resignation

In 1971, Stanford Medical School appointed a new Dean, Clayton Rich. Holman offered his resignation pro forma as Chairperson of Medicine, believing that a dean should have the right to appoint department chairs. It gave the University the perfect opportunity to replace Holman. Had he been dismissed or fired, there would certainly have been a strong public outburst of outrage or opposition.

Holman felt that his politics might have played a role, but it wasn’t the whole story. “I think the basic motivation was that I was not sufficiently clinically oriented and that we needed to strengthen our clinical work as opposed to our bioscience. A lot of people, I think, felt that way,” he says. That view was not shared by everybody. Holman had done much to diversify the types of patients Stanford medical students and house staff saw at Stanford and expanded their clinical experiences to Santa Clara Valley Hospital, as an example. “Holman was always a clinician,” says Merigan. “He got his research materials from his patients and was always involved in their care. He was involved with ensuring clinical excellence, a theme he continues to this day.”

At age 46, Holman had led the Department of Medicine for 11 years, a period never experienced again at Stanford. Except for four to five years when the position was unfilled, nine different people have held the job from 1971 until 2014. Holman realized that if he still wanted to be productive, he would need to retool in cellular immunology which essentially required learning a whole new discipline. Holman continued his laboratory studies until the 1980s but was increasingly convinced that the most critical problems in health care would not be solved by basic science alone; rather, they would also require the tools of health services research. He made his

choice: he put his laboratory on the back burner and would address some of the country's more pressing health policy needs.

Acting Dean of the Medical school at the time, John Wilson, gave him that opportunity and asked him to chair a planning committee to explore how Stanford itself might provide primary care to its students, faculty, employees, and their dependents at a reasonable cost. Like many universities then, Stanford provided healthcare to its student body through a contract with the local Palo Alto Medical Clinic. Increasing costs prompted the University to ask: if we already employ hundreds of physicians on the faculty, why should we be outsourcing their care?

The Stanford Joint Planning Committee submitted its report in 1974 after nearly three years of study (Holman et al., 1974) and called for the creation of a Mid-Peninsula Health Maintenance Organization (MHS) owned by its subscribers, in affiliation with Stanford Medical Center. The HMO openly modeled itself as a smaller (i.e., 30,000 member) version of Group Health Cooperative of Puget Sound which had been in operation for 20 years and drew on the momentum established by the inclusion of HMOs as a mandated option for federal employees in President Nixon's Health Security Act of 1974. The proposal was dismissed outright by Dean Rich as being unworkable. The deal breaker was the insistence on consumer ownership, which was considered absolutely crucial to the plan's vision. Stanford was not conceptually prepared to invest in an entity it did not own or control.

Undeterred, MHS began operating as an unaffiliated, nonprofit health plan without Stanford support. Instead, its financing came from members, local foundations, and an interest-free loan from the Bank of America Foundation. A building was renovated by volunteers into a two-examination room office in Palo Alto in 1976, and its first staff included a physician medical director, a nurse practitioner, and three Stanford faculty (including Holman) who volunteered on the 24/7 on-call schedule. Volunteer, part-time assistance was provided by a pharmacist, a second nurse practitioner, and a nutritionist.

The staff provided care in the style of by-gone days in medicine, using their Stanford faculty social-network to maximum advantage: unhurried office visits, house calls, curb-side consults, and direct admissions to the hospital whenever necessary.

Efficacy and Efficiency of Health Care Services

The MHS had many features that would have wider uptake in the years to follow. These ideas about efficiency and effectiveness of health services did

not originate in Palo Alto. What was remarkable was the degree to which they became a reality within a coherent, integrated system of care (Goldberg, Rund, and Hopkins, 2002).

MHS mounted “continuous efforts to improve efficiency and quality of services,” substituting equivalent and less expensive for more expensive treatments to lower costs. Triage and 24-hour telephone assistance reduced unneeded clinic visits. Documented unnecessary or unproductive diagnostic or imaging studies were replaced with “watchful-waiting” or a frank discussion with the patient about why doing a test would neither change treatment nor their outcome. Treatments without scientific evidence of their effectiveness were not done. For example, they implemented the findings from a randomized controlled trial of home versus hospital treatment for patients with acute myocardial infarction uncomplicated by heart failure or arrhythmia (Mather et al., 1971). Copayments were established for services which the subscribers considered optional but not for services which improved effectiveness and which the subscribers chose to encourage. It would take another seven years to show that selective copayments were effective in reducing costs in the Rand Health Insurance Experiment (Newhouse et al., 1981).

MHS also organized teams for specific patients to provide continuity of care. Their effectiveness was not to be demonstrated for 13 years, when it was shown that primary care groups of no more than seven providers are more likely to lower costs and improve patient satisfaction than larger, practice arrangements. James Quinn (1992), who studied successful service industries, argues for small units carrying out the essential delivery system at the point of service. These front-line groups are then supported to adapt promising interventions to local conditions, carefully studying their effects, and spread those new practices found beneficial across the larger organization. Kaiser-Permanente, the nation's largest nonprofit HMO, reorganized 150 such small group primary care practices.

Tucker Taylor at Fed Ex and then later with Alice Craddock in healthcare showed that without experts, visits by the staff of the low-performing units, however measured, could improve performance by immersing themselves in situ of the best performers and over a short period of time (Bloom et al., 2003; Hoffenberg, Hill, and Houry, 2001).

Tying Teaching and Research with Improving Quality of Care

The Stanford Joint Planning Committee (JPC) thought that teaching and ongoing study were a sine qua non of continuous quality improvement and

recommended that all activities of the HMO—from policy decisions to the delivery of individual health services—be open to teaching and research. This view was felt to be one of the advantages to potential subscribers recognizing that prepayment and “the incentive for cost reduction might compromise of quality of care, [and that] HMOs of high caliber concern themselves with assessing the quality of care they provide.” Its notion of system-wide “continuous efforts to improve quality of services” or “continuous improvement” was popularized in an article by Donald Berwick (1989).

Developing Patient Provider Partnership

Holman’s experience caring for Lupus patients at Rockefeller had left a lasting impression on his life-long approach to patient care and was an essential part of the MHS ethos. At Rockefeller, patients remained in the hospital for at least a month and provided material for the lupus research; in return, they received free medical care and private tutors, if they were still in school. Many patients were terrified about their disease when first admitted, but as they learned more about what was known and not known, they became calm. Holman gave patients his home telephone number with instructions to call with questions, day or night, so they wouldn’t have to deal with physicians who were not familiar with their care. The patients rarely called, and then only for truly urgent questions. Holman became a firm believer in the importance of educating patients about their disease and acquired a deep respect for their resilience and that they would find the way, even when the prognosis was uncertain or grim.

MHS used education to encourage and empower patients to become knowledgeable partners in the search for health care and improved results. The partnership between medical professionals and users of services permeated MHS’s culture and identity from governance, operations, and care delivery. People were “members” rather than patients. Self-care training was a key enabling activity to implement this value, and Kate Lorig was involved in shaping the program and one of her most important contributions in healthcare (Lorig et al., 1985; Lorig, Mazonson, and Holman, 1993; Lorig et al., 1999; 2001; Lorig and Holman, 2003).

MHS Physicians set aside specific times, daily, to talk with members by telephone, believing that many problems could be solved by phone and that reassurance and education were needed to support self-care activities and also allowed them to minister to patients without interruptions. *Take Care of Yourself* (Vickery and Fries, 1976) was provided to members to guide them in managing new symptoms with three basic strategies: apply home

remedy, make a non-urgent appointment, or seek urgent medical attention. Members were coached on how to use health services more effectively by writing out descriptions of problems and their questions before visits and taught how to monitor their condition and carry out preventive breast examinations. Other services included nutrition counseling, prescription drug advice, and health insurance counseling.

Well-childcare was done with four to six infants of similar age and their parents at a time—the forerunner of the group-visit model now in wide use. Each family prepared a description of their child's development, health problems, diet, and any questions they had. The sessions began with group measurement of growth followed by the physician examining babies in turn and who could use the opportunity to point out the range of normal development and to comment on questions collectively. Parents shared solutions to everyday challenges among themselves and the visit might close with immunizations.

In 1977, the MHS was the first in the region to offer home hospice care. Volunteers provided respite for caregivers and a group developed approaches to pain and symptom management in an era when palliative care was limited and pain preparations had to be specially compounded by a pharmacist. With the Senior Coordinating Council, the MHS created the Senior Day Health Program adding nursing, occupational therapy, and physician consultation to an existing social support program.

Overall, the MHS successfully reduced the use of health care services. MHS members had lower hospital admission rates and their length of stay was shorter according to data from communities with similar demographics or organizations that also emphasized cost-conscious care, such as the Kaiser system or California HMOs. On average, MHS office visits resulted in fewer prescriptions, laboratory studies and x-rays and fewer specialty referrals than visits to family physicians nationally. Recommended preventive services were more common. Satisfaction among members was extremely high.

MHS Moves to Stanford

The original goal of the MHS was to establish a fully prepaid health service. However, with initial assets of only \$8,550, MHS had to begin on a slightly modified fee-for-service basis and had Membership fees (\$1 per month for an individual, \$1.75 for a couple and \$2.00 per month for a family), and the patient and third-party payer were billed for medical services during its start-up. Doing that, it broke even at the end of 24 months with a small profit of \$1,220.

Nevertheless, it still faced the contradiction between fee-for-service reimbursement where more care is necessary for financial viability versus its commitment to reducing unproven or unnecessary diagnostic and treatments. To address this, in 1983, MHS secured a Hartford Foundation grant, an initial capital investment from Blue Shield of California and a contract with a regional HMO to establish its own HMO to provide care under capitation. Afterwards, reimbursement for health care shrank and the administrative overhead needed to function in a managed care environment was increasingly difficult for a small program to continue.

In 1989, 13 years after it had opened, the MHS moved to the Stanford campus and became its first family practice teaching clinic. Without a working community-based consumer cooperative, the values envisioned could only be realized on a small scale.

Many MHS programs continued functioning in the Palo Alto area. Its home care and hospice were purchased by two area hospitals and continues today. The Senior Day Health Center continued. MHS mental health providers formed a private group and later joined a national managed mental health care organization. The insurance counselors developed a business that continues to assist seniors and others with their complex medical bills. A generation of idealistic providers had no regrets, felt fulfilled, and convinced that MHS was the “way.”

Nursing Home Telemedicine, Urban Medical Group, Community Group, and the Evolution of Commonwealth Care Alliance

While Holman was leading this novel health care system a community, patient-centered health care system within a budget targeting the sick and disadvantaged, led by physicians dedicated to social justice, was also taking hold elsewhere. On the East Coast, three physicians were involved with providing services at the site of the sick and needy, collaborating with paraprofessionals, and aggressively controlling the entire continuum of services with a consistent plan and respect for the individual's preferences and priorities. They were Roger Mark, Robert Master, and Marie Felton and the systems they created eventually evolved into one: Commonwealth Care Alliance.

The three developed healthcare systems for the chronically ill and the most needy—i.e., those meeting the criteria for both Medicare and Medicaid—the complex, multiply-disabled. These are the poor and disenfranchised that might have once been cared for or “warehoused” in chronic disease hospitals, state institutions for the mentally challenged and

mentally ill, almshouses, city hospitals, charity hospitals such as the Robert B. Brigham Hospital for the Incurables in Boston (Liang et al., 2013), Montefiore in the Bronx where Holman trained, and San Francisco's Laguna Honda Hospital "God's Hotel" (Sweet, 2012). Their patients were typically ones that modern medicine had left behind with serious, incurable physical and mental disabilities—often homebound or homeless—without social connections or money, that hospitals would try to discharge as quickly as possible, and insurance companies and many physicians in practice would avoid.

The three each created entities fundamentally different from managed care models that sought to achieve savings by management control, restricting coverage, and disincentives for specialty referrals and hospitalization; instead, it was by a basic redesign of services, coordinated to offer more contact time in the person's space, and tight oversight and consistent care plans between all the potential sites of care, and being attentive to costs but not driven by what was reimbursed—rationalizing not rationing medical care.

Roger Mark, an internist and cardiologist with a PhD in electrical engineering from MIT, made house calls while running a cardiac electrophysiology lab. An Irishman and devout family man with strong Boston roots and an accent to match, he was a laconic, hard-headed pragmatist and clinician with a heart of gold who made home visits and covered sick patients in Dorchester, Roxbury and Jamaica Plain his whole career. Moved by the sights and experiences with nursing home patients brought by ambulance to the Boston City emergency room, he was convinced that their care had been awful. Many patients seemed uncared for (decubiti; absence of any medical monitoring; stereotyped repetitive medical notes of stability just before acute decline; missed major physical findings; uncontrolled diabetes and hypertension, etc.) or in extremis for treatable illnesses and he wanted to change that. He received a National Science Foundation grant for "Nursing Home Telemedicine." The program cared for over 400 nursing home patients at four homes with nurse practitioners, Doris Nolan and Ann Ripley backed up by Mark and Liang. In the '70s, "telemedicine" was basically a land-line telephone, a pager, a wet fax machine, and a Polaroid Land camera to photograph skin lesions and other physical findings that the nurses were not sure of.

Master became its medical director in 1975, and his experiences with the project showed him what could be done for complex patients with a systems approach and access to quality care. Even with evidence, Massachusetts took almost 17 years to reimburse nurse practitioner services for nursing home care.

Master's grandfather was a Russian-Jewish immigrant who worked in a canning factory who, after retirement, developed cancer. Master, then a teenager, accompanied him to medical appointments and saw firsthand the gulf between the quality of care for the haves versus the have-nots; the images never left him.

There were wards with 20 beds, and these clinics would often be in some dark basement. In the summer, it was sweltering and it was cold in the winter.

Master grew up in Lawrence, Massachusetts—a mill town. His father ran a small electronics store that eventually went out of business; and after that, took on a variety of different jobs. Probably because of this, it was a wish for a stable income, not a humanitarian one that led his son to medicine. Master turned down a scholarship to Brown University because he felt the school wasn't rewarding his grades but his success at running track. It felt risky because the funding depended on his running on the team. Colby College also offered a scholarship and a work-study option that was guaranteed whether he ran track or not. Master graduated in biology and political science at Colby, an ideal education for his ultimate profession as a medical activist. Graduating from New York Medical College, he interned at Metropolitan Hospital in East Harlem. Metropolitan was established in 1875 as the Homeopathic Hospital and later Ward's Island Hospital by the New York City Department of Public Charities and Correction. In 1894, it moved to what is now Roosevelt Island and the former New York City Asylum for the Insane and was renamed Metropolitan Hospital. During Master's training there, Frederick Wiseman filmed a documentary, *Hospital*, which won two Emmys for depiction of a city hospital's emergency room.

At Metropolitan Hospital, Master also met John Marr whose passion for infectious disease, mystery and literature and whimsical humor and irony and appreciation for the many colorful, occasionally bizarre patients, deeply affected Master. It was a welcome relief from the oppressive medical hierarchical cultures that interns' experience in their "rites of passage" years.

In 1969, Master was drafted into the 101st Airborne Division and was deployed to the Phu Long refugee camp where the Bubonic Plague was raging among the 50,000 Vietnamese. For 10 days, he witnessed his own Boccaccio's Decameron. From there, he completed his training at Boston City Hospital with its strong academic programs and socially-minded physicians caring for the poor and near poor. He was Medical Director of the Massachusetts Medicaid program during Michael Dukakis' second term as Governor.

Until 1985, Dr. Master was the first physician and medical director at the Upham's Corner Health Center, a neighborhood health center in Roxbury and founded with Feltin the Urban Medical Group, which demonstrated the value of controlling and managing patients in their journey through the various settings of their getting care and recovery back to their residence (Master et al., 1980).

Born months before D-Day while her family were hiding in a forest in Nazi-occupied France, Marie Feltin emigrated to Montreal and then to Boston. In 1988, she and Mary Glover, a nurse practitioner, established a private practice to provide consumer-oriented healthcare for adults with physical disabilities, Boston's Community Medical Group. It was the country's first clinical program for people with disabilities and funded through a prepaid, capitated "global" budget. Feltin also founded East Boston Community Health Center's Home Care Program and the Urban Medical Group. In 1983, she married Master. They continued their work until her death from a brain tumor in 1994. At her funeral more than a dozen mourners in wheelchairs overflowed to the outside.

Commonwealth Community Care became a primary care practice from these roots and has become a national model for disability-competent healthcare. Also, evolving from their work was the Commonwealth Care Alliance (CCA), a nonprofit prepaid Medicare and Medicaid financed care system, for thousands of Medicaid and dual-eligible elders and younger individuals with disabilities, through multidisciplinary primary care teams in 25 primary care sites in Massachusetts' low-income communities.

In 2014, CCA took off and in less than two years more than doubled their clients from 5,000 to 17,000. In caring for "dual-eligible" patients, the program received a global payment to cover all of the patient's health care and adjusted by their health profile. Meanwhile, CCA was given wide latitude to organize patient care and use the funds as they saw fit. This might mean services not normally covered in insurance schemes, Medicare, and Medicaid: giving patients medical access by phone 24/7, sending nurse practitioners to their home, nursing aids to remind patients to take their medications, or purchasing an air conditioner for someone with severe respiratory disease, or helping patients to church each week to mitigate social isolation and depression.

A study showed that CCA patients were hospitalized almost half the number of days as a comparable population of patients getting typical care under fee-for-service. However, a Kaiser Family Foundation study in 2012 examining nine programs for dual-eligible patients, including the Commonwealth Care Alliance, concluded that there was no clear evidence

of net cost savings overall and cautioned that large savings may be difficult to achieve.

The Race for Covered Lives: Merger of Academic Health Centers—UCSF with Stanford (1997–2000)

While the MHS experience was playing out from 1976 to 1989, two major institutions in Northern California, like academic centers elsewhere, were responding to market forces. In the decades after 1990, hospitals were pressured to compete for patients (“covered lives”) to ensure a stream of patients who might need their hospital services and started buying up primary care practices, merging to improve economies of scale and purchasing leverage, a trend that continues to this day. From 1990 on, an average of 58 hospital mergers occurred each year with the peak in 1996 when 108 merged (Town et al., 2006). Notable mergers of academic health centers included the Brigham and Women’s and Massachusetts General Hospitals in 1994, UCSF and Stanford Hospitals in 1997, and New York Hospital and Presbyterian Hospitals in 1998.

The Northern California scenario had roots in the 1980s when both Stanford and UCSF engaged in major hospital expansion projects. Subsequent cutbacks of federal funds eliminated traditional profit margins despite sizeable cuts in budgets at both institutions. In 1986, California Pacific Medical Center, Stanford, and UCSF established the California Transplant Donor Network in San Francisco to eliminate competition for transplant organs and subsequently Stanford and UCSF discussed ways to collaborate without losing their independence. A private, non-profit corporation, UCSF/Stanford Health Care (USHC) began in 1997.

The expectation that the merger would integrate five multi-disciplinary service lines 35 miles apart was never realized. Adult cardiology, pediatric cardiology, and pediatric neurosurgery had successful integration, but the transplantation and cancer programs of the two did not. The merger made \$22 million the first year, lost \$11 million in 1999, and by 2000, the merger was officially dissolved.

Robert Town et al. (2006) concluded that mergers of the ’90s reduced private insurance rolls and increased uninsured US residents. Other research showed that the mergers led to increased prices; even rival hospitals in the vicinity of merging hospitals experienced increased costs of care. Prices increased in part from increased hospital bargaining power as mergers reduced competition which raised insurance premiums for patients. Mergers occurred while volume of care was still being rewarded.

By the late 1990s, despite managed care's attempt to control costs, US healthcare expenditures continued, rising about 2.4 percentage points faster than the annual GDP since 1970.

CHAPTER 8

PROFESSIONAL DOMINANCE VERSUS SHARED DECISION-MAKING (1995–2018)

One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient.

—Francis Weld Peabody
The Care of the Patient, 1927

It turned out that Dr. Peabody didn't mean caring about a patient but caring for a patient, which he explained, meant doing the little things, the little personal things that nurses usually do—adjusting a patient's bedclothes or giving him sips of water. That took time, Dr. Peabody admitted, and wasn't, perhaps, the most efficient way for doctors to spend their time. But it was worth it, he told his [Harvard Medical] students, because that kind of time-costly caring was what created the personal relationship between patient and doctor. And that relationship was the secret of healing.

—Victoria Sweet
God's Hotel, 2012

Between 1933 and 1991, all 25 major specialties of medicine and surgery became formal entities and established certifying examinations. By the '90s, health care was increasingly scientific, specialized, and fragmented, arguably as the result of medical discoveries, new technology, and the evolution of healthcare into a major business enterprise. A patient might find themselves hurried, a check list, being talked down to in scripted technical jargon, told rather than being asked how they were doing and treated like an organ rather than as a person with a predicament. They might be anxious to understand “why me?”; to have autonomy to do something for themselves; or with a mental illness, to be parented and cared for; and desiring respect, dignity and having their priorities and preferences heard.

Their physicians were becoming employees of bureaucracies and rapidly growing investor-owned acquisitions; and were unhappy with little

ability to control things. With the obsession with cost containment, physicians like other workers in their time, tried to protect their self-interest. Conflicts between doctors, administrators, government, and corporations became more commonplace. The medical profession became less dominant and less able to influence social policy around the same time that patients were seeking and taking more control of their own health care and healthcare costs continued its inexorable rise.

Self-Care Movement

The '70s marked the re-emergence of self-help—an old legal idea that in a dispute a party had the right to use lawful, means on their own initiative, to remedy a wrong. From this, it spread to education, business, psychology, and psychotherapy through popular self-help books. Self-care may have been a reaction to activities appropriated by experts, so-called and self-anointed experts and professionals, previously done as a matter of course using common sense, intuition, or even personal contacts. In *Medical Nemesis* (1975), Illich wrote:

Yes, we suffer pain, we become ill, we die. But we also hope, laugh, celebrate; we know the joy of caring for one another; often we are healed and we recover by many means. We do not have to pursue the flattening-out of human experience. I invite all to shift their gaze, their thoughts, from worrying about health care to cultivating the art of living. And, today with equal importance, the art of suffering, the art of dying.

His admirer, the longest serving Governor of California, Jerry Brown, wrote:

Worse than all of this for Illich is . . . the destruction of traditional ways of dealing with and making sense of death, pain, and sickness. For Illich, ours is a morbid society, where “through the medicalization of death, health care has become a monolithic world religion Society, acting through the medical system, decides when and after what indignities and mutilations he [the patient] shall die. Health, or the autonomous power to cope, has been expropriated down to the last breath.” Dying has become the ultimate form of consumer resistance.

During this period, Kahneman and Tversky had also laid out the short cuts and rules of thumb (“heuristics”) and common biases (“errors”) that both non-experts and experts used when faced with making decisions in complex unpredictable situations (Lewis, 2016). Their works’ applicability to

making medical decisions was compelling. It may also have undermined the mystique of physicians as all-knowing.

Two classics in self-care appeared: one from the East Coast and the other from the West Coast close to Stanford. *Our Bodies, Ourselves* began as a 35-cent, 136-page booklet intended for a women's health course, written for women by women, organized by Nancy Miriam Hawley at Boston's Emmanuel College (Boston Women's Health Book Collective, 1973). The authors felt that personal experiences provide a valuable way to understand one's own body beyond the mere facts that experts provide. Second, this kind of learning meant that they were "better prepared to evaluate the institutions that are supposed to meet our health needs." Third, the historical lack of self-knowledge about the female body "had had one major consequence—pregnancy" and through greater information, women will have more ability to make proactive choices about when to get pregnant. Fourth, information about one's body is perhaps the most essential kind of education, because "bodies are the physical bases from which we move out into the world." *Our Bodies, Ourselves* is now in its 9th edition in 26 languages and Braille.

Take Care of Yourself and Taking Care of Your Child

The US Army's Automated Military Outpatient System (AMOS) Project was developed to improve the ambulatory care of patients with episodic and chronic illnesses (Vickery et al., 1975). Acute minor illnesses were the most common problems treated by the walk-in clinic staff. A simple, conservative triage system run by non-professionals was developed to screen patients to be seen in a clinic for benign, self-limited illnesses run by physician-extendors trained over 3 weeks to treat 44 common minor illnesses following protocols. At triage, if symptoms might be harbingers of serious or life-threatening illness or beyond the expertise of the physician-extendors, patients were sent directly to the medical officer of the day for diagnosis and treatment. The front end of the system was manned by volunteers consulting a loose-leaf of triage decision trees for common symptoms of upper respiratory illness, vaginitis, low back pain and other common complaints. Many had been developed at the Massachusetts Institute of Technology Lincoln Laboratory Ambulatory Care Project and the Beth Israel Hospital in Boston under Dr. Shelly Greenfield.

By 1975, AMOS was operating in 26 Army facilities and caring for some 44,000 walk-in patients a month. It also became apparent that the volunteers were taking the triage algorithms back home to use; these became the basis of *Take Care of Yourself* (Vickery and Fries, 1976) and

Taking Care of Your Child (Pantell, Fries, and Vickery, 1977). The first edition of *Take Care of Yourself* came out in 1976 and the 9th edition was completed shortly before Vickery's death from lung cancer with 15 million copies sold. Now, we are in a digital era: patients and potential ones are information-rich/experience-poor in contrast to years ago. However, few if any deal with the real questions that worry people, "should I be concerned?" and "what should I do next?" (Hwang, Gall, and Liang, 2009).

The self-care movement in US healthcare was a continuum of activities to obtain modern healthcare through minimally trained persons or paraprofessionals; in areas where physicians did not go or did not exist. Examples include the feldshers in Russia, barefoot doctors in rural China, frontier nurses in the Appalachians, Grenfell Mission nurses on Canada's subarctic coastline, David Warner's Project Piaxtla and PROJIMO in Mexico.

Self-Help in Chronic Disease

From 1977 to 1997, the Division of Rheumatology had NIH support for the Stanford Multi-Purpose Arthritis Center. The Division had already done much in the long-term study of chronic rheumatic disorders, in measuring its functional impact, but a nurse reluctantly recruited to Stanford was to make a major contribution in self-management.

Kate Lorig's work in rheumatology was sheer chance and could have ended before it started. With Gaucher's disease diagnosed at age three, she received her nursing degree at Boston University and an M.S. in nursing at the UCSF. In 1980, a fellow dinner guest, Dr. Joe Hopkins, Medical Director of the Mid-Peninsula Health Center, learned of her interest in health education and offered her a job on the spot. She had no interest, since she had just started her doctorate in health education at Berkeley. That summer, she directed a community health and nutrition field project in El Salvador. When she came back, Holman tried to hire her again for both MHS and to the newly funded Multi-purpose Arthritis Center. Her real interest was in child and maternal health but Holman persuaded her, "you can always get back to that." She moved to Palo Alto in 1978 and never left. She became an international figure in a field that she made her own.

Lorig developed a self-care course for arthritis patients and demonstrated its effectiveness and potential to reduce utilization. The course differed from most patient education programs of the time, which were generally led by health professionals and dealt with technical aspects of care. By contrast, the Arthritis Self-Management Course, as it was called, focused on the many consequences of having chronic arthritis: their work, family relationships,

social activities, and emotional state. Facilitated by a trained lay leader (often patients themselves), the course encouraged patients to share their experiences and learn from each other how best to manage the disease and its impacts. Lorig and Holman tested the course and found patients' symptoms improved and they required fewer medical services. They also showed the same in other chronic diseases such as diabetes, high blood pressure, and asthma.

Kate Lorig was a professor at Stanford and at the UCSF School of Nursing—a unique achievement. Her work went from a “pilot” to being institutionalized in less than a generation—the very model of translational research. Leaders in self-management courses were trained all over the world. The National Council on Aging cited that the handbook on the course was “an indispensable guide for people of all ages who are living with a chronic physical or mental health condition,” and it sold over 700,000 copies. The venerable Kaiser Permanente adopted the Chronic Disease Self-Management course. Both the Chronic Disease Self-Management and Arthritis Self-Management Courses were adopted by England's National Health Service in 2004.

CHAPTER 9

EPIDEMIC OF CHRONIC DISEASES AND THE 2010 PATIENT PROTECTION AND AFFORDABLE CARE ACT

Healthy citizens constitute our greatest natural resource, and prudence as well as justice demands that we husband that resource... as a nation we should not reserve good health and long productive life for the well-to-do, only, but should strive to make good health equally available to all citizens.

—Harry S. Truman, 1947

Of all the inequalities that exist, the injustice in health care is the most shocking and inhuman.

—Martin Luther King Jr., 1966

We finally declared that in America, health care is not a privilege for a few, but a right for everybody.

—Barack Obama, 2017

In the 1950s, a profound transition in the ecology of health problems in the United States became evident. The burden of illness went from acute diseases to chronic diseases. Soon after, chronic diseases began a steady increase and so did the costs of healthcare. In the decade of the 1970s, the prevalence of major chronic diseases rose between 40% and 150% while healthcare expenditures tripled. In the last 20 years, the prevalence of chronic disease has grown by 7 to 8 million people every five years and now affects 50% of the population and consumes over 85% of healthcare costs (Holman, 2020). It has for the most part been a quiet epidemic neglected by medical schools, by graduate medical education and the population health communities.

Another demographic trend also intersected with that of chronic disease and by 2050, the number of older people in the US was projected to increase by 135%; the proportion of the population over age 65 increase to 20%; the

proportion of the population age 85 and older increase to 5%. At the same time, the ratio of people ages 16–64 (the working ages) to those age 65 and over would decline to 43% meaning relatively fewer taxpayers to support programs for the older population, and fewer caretakers of the dependent elderly.

Contemporary medicine is structured to managing acute, dramatic, life-threatening or potentially fatal disorders (e.g., trauma, myocardial infarction, pulmonary embolism, stroke, cancer, etc.). It is not a model for chronic incurable maladies (e.g., diabetes, renal impairment, obstructive lung disease, osteoarthritis, mental illnesses, Parkinson's, dementia, etc.) or diseases with waxing-waning course or flares/exacerbations and remissions. The common consequence of all disease whether acute and chronic is impaired function and this can be compounded by the normal (but often reversible) trajectory of aging and accumulating co-morbid illnesses.

In acute illness, providers drive the agenda and the process; in chronic illness, the patient becomes their own provider for most part and knows best what is working. Treatment changes from one-time interventions for a defined problem to the ongoing management of multiple diseases and disabilities; coping and making the best with illnesses rather than curing them. With chronic illness, diverse services and sites of care need to be coordinated and modified as circumstances change. Our prosperous country has a *mélange* of financing and delivery systems with huge numbers of individuals without coverage or sufficient coverage or impoverished by healthcare expenses. Citizens basically receive what is reimbursed and 'documented' in an administratively expensive, hopelessly complicated, chaotic process. Those with no or less social or educational advantages suffer and die disproportionately. With all the income streams from the medical-industrial complex, healthcare now represents 20% of the US total economy. Winners and losers are made in every business transaction; the impression that money drives everything is a reality.

As discussed before, national health insurance was first discussed in the United States by Theodore Roosevelt during his unsuccessful 1912 presidential campaign. FDR continued the thread, but the effort failed in committee. Truman, his "accidental" successor tried to advance that agenda but was beaten back by the accusations that it would increase taxes and begin "socialized medicine." As Republicans regained control of the House in 1946, Truman's healthcare bill died.

In 1979, the Carter administration's healthcare reform also stalled. Republican control of the White House and mounting deficits in the 1980s added to the sense that major health insurance changes were unattainable

and reformers in Congress settled for less expensive incremental changes such as expansions in state Medicaid coverage.

The Unsuccessful Clinton Health Reform

In 1992, President Bill Clinton promised comprehensive healthcare reform fully worked out, presented to Congress in the first 100 days, and passed in the first year of his new administration. It was “sold” as something that would happen with little, if any, cost to the taxpayer. It was wishful thinking, and its eventual failure blamed on its complexity, bureaucracy and its secretive planning process. Its design was dominated by academics and the health insurance industry and did not include physicians, nor allay fears of big government and higher taxes. Decisions were made behind closed doors without the usual give and take from potential allies. The health insurance industry spent a fortune lobbying, the Republicans in Congress were obstructionist, and mounted a public campaign of misinformation. After that failed effort, Massachusetts, Oregon, and Vermont attempted reform. Each experience provided important insights.

In 2006, four years before the passage of the Affordable Care Act, Massachusetts’s enacted its own health reform legislation to put the state on the path to universal health insurance coverage (the 2006 Chapter 58 Act Providing Access to Affordable, Quality, Accountable Health Care). By 2008, Massachusetts had the highest coverage in the nation and has maintained that record since. Expanded coverage improved access and affordability of care early on, but these gains faded over time. In 2015, more than one-third of insured adults reported going without some type of needed care during the prior year, attributed in part to difficulty finding providers who would see them or in time. One in six citizens reported problems paying medical bills and more than 20% of insured adults reported medical debt. A decade after MassHealth was enacted, vulnerable populations and communities are still not covered. Among those with coverage, gaps in access and affordability remain (Long et al., 2016).

In 2008, the Oregon Health Insurance experiment studied the effects of the Medicaid expansion. The study took advantage of a natural experiment in which expanded benefits were based on a lottery from a waiting list. This permitted a randomized study comparing those who lost to those who won the lottery and were eligible to enroll in the Medicaid expansion program after previously being uninsured.

In the first year, Medicaid coverage was associated with higher rates of healthcare use, a lower probability of having medical debts, and higher self-reported mental and physical health. In the 18 months following, Medicaid

coverage increased emergency department visits. Approximately two years in to the study, Medicaid had no significant impact on physical health measures, but increased use of healthcare, increased diabetes detection and management, lowered rates of depression, and reduced financial burden.

Green Mountain Care, Vermont's aspiration for a public universal insurance coverage from 2011 to its demise in 2014 is another important case study. In the final analysis it would have doubled Vermont's budget, increased state income taxes up to 9.5% and placed an 11.5% payroll tax on all employers—an "economic shock" that was not politically viable. The many decisions the governor's team made in designing the system on which benefits to include, whom to cover, and out-of-pocket costs required trade-offs with winners and losers. The biggest threat was healthcare costs, running away faster than the US economy and making care increasingly unaffordable no matter how it was paid for.

On an evening in July 2004, the keynote address at the Democratic National Convention was given by an Illinois State Senator and US Senate candidate, Barack Obama. His landslide victory in the 2004 Illinois US Senate Democratic primary made him a rising star overnight, and with that speech, started the discussion of his run for president.

His election five years later as the first African-American president was celebrated worldwide as an affirmation of the American dream and the beginning of redemption of a nation whose original sin of slavery had subjugated, murdered, and denied basic human rights and voting ability to an entire ethnic group for most of its history. Obama inherited an economy in shambles after the worldwide financial crisis and recession of 2007. The honeymoon was very brief. As soon as he was sworn in, certain factions dedicated themselves to not having Obama re-elected. Partisan gridlock, second-guessing, outright insubordination of the Commander-in-Chief, and slander dogged him. Was it evidence that we had truly become colorblind and he was being treated like every other politician? Was it racism putting an uppity-black in his place?

One of his greatest legacies is the health bill he pushed and pulled through the legislative process. Against the advice of many advisors, Obama was determined to pass a healthcare bill, to show the country it had the courage, the will, and the capacity to do so. Major concessions to the healthcare and health insurance industry and partisan opposition left the issue of controlling prices for future battles. On March 23, 2010, the Patient Protection and Affordable Care Act (ACA) was signed into law (Obama, 2020).

The ACA had provisions taking effect over four years including expanding Medicaid eligibility, subsidizing insurance premiums for people meeting

certain income criteria, incentives to businesses to provide healthcare benefits, prohibiting denial of coverage and of claims from pre-existing conditions, establishing health insurance exchanges, prohibiting annual coverage caps, and support for medical research. The costs of these provisions are offset by taxes, fees, and cost-savings, new Medicare taxes for those in high-income brackets, fees on medical devices and pharmaceutical companies, and a tax for those who did not obtain health insurance, unless they are exempt. In 2010, the Congressional Budget Office estimated that the laws would reduce the federal deficit by \$143 billion over the first decade.

The ACA faced legal challenges from the beginning, particularly against the requirement that all Americans had to buy health insurance. In June 2012, the Supreme Court ruled that the Constitution's Commerce Clause did not allow the government to require people to buy health insurance, but the mandate was constitutional under the US Congress's taxing authority. Subsequently the Court ruled that certain for-profit corporations could be exempt on religious grounds from regulations under the ACA that would have required them to pay for insurance that covered certain contraceptives.

The ACA got the government involved in insuring universal care but with no controls over the big businesses of healthcare, or any idea of the impact of expanding Medicare eligibility. ACA had improved access dramatically but not the systemic problems with their complexity, costs and their details which Holman and others had been confronting head-on.

Stanford Health Partners (1998–2002)

Having seen the value of self-management, Holman tried to embed this into Stanford's primary care practices. As Co-Chief of the Division of Family and Community Medicine he worked to incorporate elements of MHS in their clinics such as group visits and self-management education for chronically ill patients. The new program, called Stanford Health Partners, was launched in 1998 with grants from the Hospital administration, the Robert Wood Johnson Foundation, and the Aetna Foundation. The Health Partners Program was enthusiastically supported while Dr. Ted Harris was Department of Medicine Chair. But neither Dr. Judith Swain, who followed him, nor Dr. Philip Pizzo, Dean of the Medical School, were supportive. In 2002, Pizzo dismantled the Division of Family and Community Medicine and Holman as its Co-Chief despite strong protest. Under California law, however, Stanford had to offer a Family Medicine clerkship (consistently one of the students' favorites) to have its graduates be recognized by the state. To meet this requirement, Pizzo converted the Family Medicine

Division into an educational “Center for Family Medicine Teaching” based in the Dean’s office to offer the clerkship experience.

In 2005, the new Chair of Medicine, Ralph Horowitz, a general internist who had run Yale’s Clinical Scholar Program after Feinstein’s death, was much more sympathetic to primary care. In 2009, he reinstated Family Medicine as a Division in the Department of Medicine. But by then, all the work and money that had gone into developing Health Partners was lost.

Countywide Chronic Care Coalition (C4)

In 2006, Holman was invited to a Commission to advise the Santa Clara County Board of Supervisors on health issues. Like many counties in California, it was caught in a squeeze with a large population with medical needs and severe budgetary restrictions. When Holman joined the Commission, health facilities seemed ill equipped to handle the growing volume of chronically ill patients. With his lead, the Commission endorsed the Chronic Care Model for the county with its emphasis on continuity care, self-care support and education, case management by teams of providers, and disease registries that allow providers to exchange information and follow patients over time (Wagner et al., 2001).

Since the Commission had no direct authority over private medical practices, health professionals from the county’s largest medical organizations, Kaiser, the Palo Alto Medical Foundation, Valley Medical Center, and others organized themselves, in 2009, as the Countywide Chronic Care Coalition (C4). With Holman as Co-Chair, seed funding from their member organizations, plus a \$25,000 grant from the California Health Care Foundation, they began educating people about the benefits of the Chronic Care Model. C4 also provided practical assistance, with faculty at UCLA, to neighborhood clinics by converting their systems of care and evaluating practices that adopted the Model.

Unfortunately, C4 was battered by setbacks—namely, bankruptcy of the Santa Clara Diabetes Society, key personnel leaving, and ultimately a state recession and resulting budget cutbacks. California’s Medicaid program shifted many of its patients using fee-for-service providers into managed care plans in the neighborhood clinics. As the clinics struggled to cope with the large new influx of patients and shrinking budgets, most were unable to devote the time and resources necessary to make any significant changes in their practice. Despite C4’s help, only a few clinics actually adopted parts of the Chronic Care Model—notably the Valley Medical System ambulatory clinics in Milpitas and Sunnyvale, and the Indian Health Service.

In 2010, Ralph Horowitz recruited Dr. Arnold Milstein to Stanford to establish a center for Clinical Excellence research with the Schools of Medicine, Engineering and Business, to design and test new health care delivery models to lower per capita health care spending and improve clinical outcomes. Drs. Alan Glaseroff and Anne Lindsay were recruited to develop a new clinic at Stanford for patients with chronic illness, the Stanford Continuity Clinic, which incorporated key elements of the Chronic Care Model and also bore a striking resemblance to the ethos of MHS and what the Health Partners Program was beginning to do in 1998 before Family Medicine was dismantled.

That August 2010, Barbara Holman was fighting for her life having suffered a medical mishap in which a routine lumbar puncture had been complicated by a catheter breaking, necessitating emergency surgery, and then a hospital-acquired pneumonia. The family was with her in the intensive care unit. Her irrepressible humor (“the Barbara Holman comedy hour”) kept them and the hospital staff in stitches with laughter. Two months before she died, Hal joined them for what was to be their last meal together.

The Doctor as a Patient

In the '80s, Holman's brother, David, was diagnosed with advanced prostate cancer after an abnormal new screening test, the prostate-specific antigen (PSA). He asked Hal what his test showed which prompted Holman, who was in good health, to get tested for PSA; it was markedly elevated. He consulted Dr. John Wasson, a former Stanford Clinical Scholar and authority on the subject and Wasson consulted his network of the nation's experts. They confirmed that none had seen a higher PSA and recommended he get a CT scan. It showed lymphatic node spread of the cancer.

Fortunately, Stanford was a pioneer in the therapeutic use of radiation. Henry Kaplan, MD had developed the first high-energy linear accelerator for therapy in the 1950s. He and his colleagues introduced new techniques using the high energy and precise beam definition of the linear accelerator in treating many cancers, metastatic breast and prostate cancer, Hodgkin's disease and other lymphomas. After radiation of a node near the prostate, Holman's PSA came down and stayed down.

Later, Holman developed spinal stenosis with involvement of the cauda equina. This serious degenerative spine disease, which can affect bowel and bladder function, was not safely operable and left him dependent, in pain, leaning on a crutch, with weakness, difficulties with balance, and unpredictable pain. Holman also developed macular degeneration and progressive visual impairment. Using aids to enlarge fonts reduced his field

of vision to a few words at a time. Words, not sentences of the larger concept, and dependence on others to read also inhibited his natural instinct to stop, question, clarify, comment or park the thought for discussion—all particularly frustrating for a person of words and precision of thought.

Medical setbacks and suffering affect physicians as they do everybody else. Getting and receiving help are qualitatively different. Although there may be a more equal relationship between the physician-patient and their physicians in status and power, knowledge, and common experience, a physician caring for another can never assume that one fully understands the other's understanding of the disease, or their expectations and goals. In addition, the impulse for the patient-doctor to second-guess their physician and to doctor themselves is ever present. It can be a bitter-sweet experience but is a humbling opportunity for learning and to experience symptoms and disability, denial, dependency, and not having an answer. It can also be a revelation of how broken the current healthcare system is for the average person to navigate and to have their needs met.

Looking Back

Before the age of 35, Holman hit over .500 at UCLA; was wooed by professional baseball; led the Association of Interns and Medical Students and International Union of Students; had his passport confiscated while overseas; stripped of a prestigious internship; shadowed by the FBI because of suspicion that he was a communist sympathizer; made a major scientific discovery; and was recruited to the new medical center in Palo Alto.

As the youngest Chief of Medicine ever, he helped build Stanford into an international academic powerhouse from its roots as a regional institution. At the same time, he and his family participated in efforts for world peace and social justice. He expanded the learning outcomes of medical students and graduates of the Clinical Scholars Program and what problems they researched.

Holman was a participant and witness to six decades of change in American medicine in education, research and healthcare. After a decade involved with the building of a modern academic health center, he had reservations about science's ability to solve societal problems and the incursions into its humanitarian traditions, and the failed attempts at controlling its costs. The latter drove all the rest.

Every effort to slow the growth of health costs was temporary. Many seemed to change the frame of reference from medicine's basic calling to the latest business model and metric of success from stakeholders trying to insure options, profits or brand. By 2009, healthcare's share of the GDP

quadrupled to more than 17%, the highest increase compared to similar countries, and there was little evidence that the money spent produced better outcomes for its citizens.

In a major redirection, Holman began a series of an alternative, community-based, consumer-run primary care center and healthcare system that attempted to seamlessly use data to improve cost-effective medicine while critically studying their impact. He and others struggled to mitigate the humanitarian gaps in what is known and what is done. Some did not survive as originally named or conceived, but their ethos and practice were passed on and translated by others. His efforts to change healthcare touched the major issues of reform. They included evidence-based management, shared physician–patient decision making, self-management, medicalization of disease, overuse of medical technology and diagnostics, patient-centered care, and chronic disease management. One of the most important was the belief that those with the most to gain or to lose—i.e., the patients—had to be involved, especially those with chronic disorders and the citizens in the formulation of social and scientific policy. As an experimental laboratory scientist and later as a participatory health care researcher and eventually as a patient-participant, he strove to refine and test new ideas in real life settings.

After he transitioned from public life, the ACA was enacted. The idea of national health insurance began in Theodore Roosevelt's 1912 unsuccessful run for the presidency. It was articulated in plain English by

President Truman and fought successfully by the American Medical Association. It was brought up again under Carter, then Clinton with a major effort, only to languish politically until Obama expended all the political capital possible against his advisors' advice to pass the Affordable Care Act.

The 2010 Act moved healthcare financing closer to a true insurance system and expanded coverage but without controls and health coverage tied to employment (Brill, 2015). His successor vowed to overturn ACA and replace it with something superior but, in four years, never presented a concrete alternative. It was not the only thing or institution he broke. The country faced the very survival of democracy itself. And in the last years of his reign, it felt like all of the world's crises converged and brought the world to a pause.

CHAPTER 10

EPILOGUE: BACK TO BASICS

You only grow by coming to the end of something and by beginning something else.

—John Irving
The World According to Garp

You have the responsibility to fail.

—Halsted R. Holman

Medicine is a social science, and politics is nothing else but medicine on a large scale.

—Rudolf Virchow

“The Struggle for the Soul of Medicine” describes the abiding quest of our subject. What we tried to express became much clearer towards the end of our writing. On Inauguration Day, January 20, 2021, the soul of medicine was hard to define, but we tried to describe it as we saw it.

The soul of medicine and “Back to Basics” are revealed in the relationship between a physician and the patient, in the physician caring for them and for viewing healthcare as a basic human right. Its soul is helping them find their voice, recognizing them as human beings, and providing a haven for their expression and a feeling of belonging. Its soul is medicine as a calling. It is a physician’s effort to speak truth and express hope to patients, to listen intensely, to understand their patient’s lives, their beliefs, their fears. It is to stand with them in their suffering and humanity, without judgment or bias, making incremental changes, as long as needed. The search to make its “soul” more meaningful in word and deed is a lifelong challenge (Kleinman, 2019). The presidential historian, Jon Meacham, wrote:

Leaders are far more often mirrors of who we are rather than makers of who we are, and that’s an uncomfortable reality. To overcome these forces, we

must recover the true original intent of America's founders. For all of our problems, appetites, ambitions, fallen nature and frailty, reason has to take a stand against passion in the public arena. It's about openness to changing circumstances and data. (Meacham, 2019)

Holman, who is arguably one of this young century's great medical leaders, represents a beloved physician-activist who took a stand for the humanitarian goals and social justice of medicine. His struggle was singular and enduring. The local and national social, cultural, and political landscape changed and shaped what could be done. During this time, the major causes of shortened life expectancy and disability changed from acute to chronic diseases.

Tragically, even with the ACA, the US is still the only advanced nation without universal healthcare. By measures of population health, it is near bottom among modern nations (Schneider and Squires, 2017). Many, who became physicians in the '60s to '80s, cannot recognize what medicine has become. Some are experiencing medical problems themselves or in their family—an experience that often makes them feel the system is broken.

Medicine began to lose its way when healthcare became increasingly monetized and its costs rose inexorably in the 1970s with the development of more powerful, expensive diagnostic tools and treatments and rising expectations of patients to get the best or to try something better. American healthcare is now big business and non-profit health systems becoming monopolies. Healthcare represents 20% of the US economy funded by myriad cumbersome, expensive mechanisms. It is a slow-moving crisis and has avoided widespread outrage for its excesses. Its technical achievements have been overshadowed by its insensitive delivery, fraud, and the disproportionate suffering in persons of lower socio-economic means confounded by systemic racism and bias—all evident in the COVID-19 pandemic.

The 2010 Affordable Care Act dramatically expanded healthcare access, but the medical-industrial complex will profit most without systemic controls. Health coverage is still tied to employment which prevents it from being available to everyone. During COVID-19, 10 million US citizens lost health insurance because they were not working. COVID-19 is a precondition for which insurance companies might refuse coverage or justify higher premiums.

As a nation, we have no shared vision of healthcare as a basic human right. The debate has fallen prey to narratives and labels based on fear and disinformation (“creeping socialism,” “loss of choice,” “death committees”). Below the surface are unresolved and unspoken judgments and emotions: “It’s their fault; they should know better.” “It’s their problem.” “It’s survival of the fittest.” We feel guilty for ignoring, abandoning strangers in need.

But for the grace of God we, too, might be abandoned in similar circumstances. Academic analyses hide our discomfort, create illusions of rationality, equity, and deny the complex, moral and humanitarian implications, and their resolution. Still failing to achieve universal healthcare for almost 100 years, we still debate it as market transactions where the measurable (money) drives out the humanitarian issues beneath.

Holman believed that humane medical care could be achieved by understanding its complex social, cultural, economic and political determinants but what propelled his action was its humanitarian mandate. As a scientist, he believed that theoretical analyses had to be empirically tested in real life. Theory and practice had to also adapt as conditions changed. There was not likely to be a unifying hypothesis or a magic bullet. He embraced the complexity of the problems facing medicine and allowed one to identify targets for intervention.

From this perspective, we indicate the major forces determining health; many began long ago and converged in 2020. Mankind's greatest threats are man-made and have no physical or man-made boundary or schedule. They expose the injustice and the disproportionate suffering and deaths of those who are marginalized without resources and a voice.

Pandemics

The Great Influenza of 1918 killed as many as 100 million people worldwide, more people in 6 months than AIDS in 24 years; more in one year than the Bubonic Plague in a century (Barry, 2005). Since then, the world has seen the swine flu, Ebola, Zika. In February 2020, the first US death from COVID-19 was reported. By December 14, 2020, 73+ million people have been infected worldwide, almost 17 million in the US alone and the US led the world with 307,471 deaths. Economies have nose-dived; societies are paused.

Every morning, in endless March 2020, Americans awoke to find new evidence of a failed state in our response to the pandemic. Just as virulent and potentially fatal as COVID-19 was an American president whose only qualification was selling a brand associated with greed, corruption, incompetence, misogyny, racism, and cruelty. The president minimized the deadly threat of the coronavirus while telling inside traders to sell short and others who invested in companies manufacturing body bags (Kelly and Mazzetti, 2020). The most powerful leader in the world bragged about his management, blamed others for failings, promoted unproven, dangerous remedies like bleach, said one thing, about mask wearing, but acted differently, and refused to take responsibility and to lead. In the absence of

leadership and shared facts, people found their own explanations, and conspiracy theories filled in like weeds. Eventually the president, the CDC, and the FDA became distrusted, discredited, and unheeded.

Much of mankind faced a Faustian choice between avoiding one another to stay safe or struggle for a barely livable wage, food, and healthcare. The gross inequality of our healthcare and social support system was on view for the world to see with the refrigerated trucks storing the corpses of the newly deceased from COVID-19 lined up outside public hospitals. As in other disasters, economically disadvantaged Black and Brown people suffered the most.

Climate Change

Global warming is blamed for the extraordinary worldwide increase in record extreme weather from tornados, hurricanes, and year-round forest fires in California. Global warming, deforestation, and diseases have wiped out coffee farms in Africa, and Latin and Central America. The migration from increasingly unlivable warmed areas of the planet has begun. Trump's public tirade against the "Chinese Virus" enabled random racist violence against Asians.

Ideologies of Hatred and Oppression

On May 25, 2020, George Floyd was murdered by a policeman kneeling on his neck. This set off peaceful demonstrations involving 15 to 26 million people from the US and over 60 countries, seeking justice and rekindling the Black Lives Matter movement. As the Election nears, Trump's Big Lies, attacks on the rule of law, the intelligence infrastructure, international collaborations, ad hominem attacks, and assault on free and fair elections—the essence of democracy itself—are a daily spectacle. His rants preyed on the aggrieved and incited the basest racism, violence, and cruelty.

Widening Income Inequality

Income inequality—a relentless force in America since the late 1970s—has grown. The Financial Crisis of 2008 and the complete failure of oversight of the finance industry crushed Americans—indebted from the subprime scam, they lost their jobs, homes, and retirement savings; the working class fell further behind. The disenfranchised group with legitimate grievances became the core support of America's most dangerous leader. The Arab Spring of 2010–11 was part of the same phenomena. Without an organized

infrastructure or mature alternative, the Arab Spring threw these countries into chaos, violence and mass emigration (Tufekci, 2017).

The Market, Monetization and Commodification

The Market is discussed whenever something of value is at risk of survival. Monetization, commodification, and the market have transformed essential “common goods” to private entities, off-loaded to vendors or its lucrative assets sold, leased or becoming businesses. Examples include American healthcare, potable water, the military–industrial complex, secondary public education and higher education, jails, courts, parks, sports and the electoral political–industrial complex. When everything can be bought, sold or rented, nothing can be truly valued.

The Death of Truth and Trust

Shared facts and truth are the substrate of trust and wise decisions. Lies, believable lies, lies that conflict with observed behavior, that start as small lies, repeated, uncontested, fuel more lies and Big Lies. The Internet changed social interaction, commerce, foreign affairs, and crime in less than 30 years. Truth has become equated with attention on social media. Attention is a true addiction, a commodity magnified, bought, sold and manipulated for enormous profit. It also undermines our freedom, our trust, and allows the thinking of the few to survive and connect with other like-minded individuals. Effective public health messaging is obfuscated. It has made the free press and its vital role in questioning powerful institutions and truth finding nearly extinct at the community level.

When Institutions and Leaders Fail

Every generation is defined by the challenges it overcomes. When the situation is as complex as it exists today, it is easy to be drawn into each of the many unjust or unfair determinants. This is one reason we cannot unite in a sufficiently sized effective response; others take advantage of this. It’s likely that answers will come from ordinary people “on the ground” as they have before when our country has struggled for human rights (Zinn, 1980).

In 2020, the profound importance of the social environment on health, wellbeing, resilience—was evidenced again. Worldwide we saw that disasters spared no group; the poor and minorities through no fault of their own suffered and died disproportionately. But will the renewed attention

and outrage be sufficient to ensure healthcare as a basic human right and strengthen our social safety net?

Is it a sign of a failing state? Our country's current situation has remarkable parallels to previous civilizations that have collapsed (Tainter, 1988). When societies confront issues, they tend to respond with new layers of bureaucracy, infrastructure, and specialists. With these, a new language or jargon is used, making it difficult for others to participate meaningfully in decisions that affect them. When investments in energy, education and technological innovation become stymied or produce diminishing results, the end is in sight. The globalized modern world is subject to many of the same stresses that brought older societies to ruin.

Holman's struggles to preserve medicine's soul, and its humanitarian vision of alleviating suffering to all in need irrespective of the adjectives describing them, are goals larger than ourselves. They need affirmation more than ever, focus, and going back to basics: "[As] I scoured the rubble and ruin of [James Baldwin's] life and works, this call for a different story was the answer I found to my own shaken faith. In his last novel, *Just Above my Head*, Baldwin provides the key to surviving and mustering the strength to keep fighting amid the after times" (Glaude Jr., 2020).

Not everything is lost
Responsibility cannot be lost,
It can only be abdicated,
If one refuses abdication, one begins again.

—James Baldwin
Just Above My Head, 1979

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